

Major Applied Research No. 11

**COSTS, FINANCING, AND EFFICIENCY
OF HEALTH PROVIDERS IN SENEGAL
A COMPARATIVE ANALYSIS OF
PUBLIC AND PRIVATE PROVIDERS**

**Phases 2 and 3: Field Work, Research
Results, and Policy Recommendations**

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ABSTRACT

This report presents the methods, results, and findings of a 1993 study of the costs, financing, and efficiency of private health providers in Senegal. It outlines the role and performance of private health care providers, compares their performance with that of government facilities, and explores the potential advantages of greater public-private collaboration in the provision of health services. The study also seeks to contribute with empirical information to the ongoing ideological discussion about the relative merits of public and private production of health care.

This private sector study was initiated following a similar 1992 HFS study of government health care providers in Senegal that revealed important deficiencies in the public health care system, including poor quality care, inefficient use of human and other resources, a malfunctioning referral system, and inappropriate pricing practices.

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ACRONYMS

AID	United States Agency for International Development
ALOS	Average length of stay
AR	Applied Research
BI	Bamako Initiative
DPT	Diphtheria
EPI-INFO	Epidemiological database created by the Centers for Disease Control
FCFA	Franc Communauté Financière Africaine
FY91	Fiscal Year 1991
GOS	Government of Senegal
HFS	Health Financing and Sustainability Project
HHRAA	Health and Human Resources Analysis for Africa
MAR	Major Applied Research
MSAS	Ministère de la Santé Publique et de l'Action Sociale du Sénégal/ Ministry of Public Health and Social Affairs of Senegal
PNA	Pharmacie nationale d'approvisionnement/National Pharmacy of Senegal
SDA	World Bank's Social Dimensions of Adjustment Program
USAID	United States Agency for International Development

EXCHANGE RATE

1 US\$ = 270 FCFA (1991)

FOREWORD

This paper is one in a series of reports on findings and policy recommendations from Phase 3 of the Major Applied Research conducted by the Health Financing and Sustainability Project (HFS).

The Health Financing and Sustainability Project is a five-year initiative funded by the United States Agency for International Development (USAID). The project's mandate is to provide technical assistance, conduct applied research, implement training, and disseminate information on health care financing throughout the developing world. The project seeks to influence policy change by advancing knowledge; testing and improving delivery, financing, and administrative methods; strengthening institutional capacity; and enhancing technical capabilities. To date, HFS has been involved in health care financing activities in over 30 developing countries around the world. Applied research activities account for one-quarter of HFS project activities.

HFS has conducted its major applied research in three phases. Phase 1 included a review of the literature and of past experience and the development of a conceptual framework. The papers generated under Phase 1 are essentially conceptual and methodological and are therefore oriented to field researchers and teachers. Nevertheless, because these papers also underscore current gaps in knowledge, they are of use to international donors, health ministry decisionmakers, and others who are concerned with health care policy.

Phases 2 and 3 were designed to reduce the gap in current knowledge identified in Phase 1. Phase 2 comprised the field research and data collection, and Phase 3 has involved data analysis, report writing, and dissemination. Phase 3 papers have as their main audience developing country decisionmakers and policymakers, inside and outside the countries where the research was conducted. Methods, findings, and recommendations are written in nontechnical language, with technical information provided in appendices.

Phase 3 products also will be of interest to international donors because they validate or reject important hypotheses and evaluate existing policies. These papers also test new or improved research methods, identify directions for further research, and contribute empirical information to the general body of knowledge. Therefore they should be useful to researchers and academicians.

THE ROLE OF APPLIED RESEARCH IN HEALTH POLICY REFORM

Health financing reform is a prominent political issue and a priority for the health sector around the world. In industrialized nations, containing health care costs has been one main impetus behind efforts to reform health financing policies. In developing countries, a key motivating factor for reform efforts has been the growing demand on increasingly strained public resources represented by the traditional commitment of governments to provide free health services to all.

At the center of the policy debate are discussions about ways to improve equity and efficiency. Ideally, health care financing practices and policies should promote both equity — financial and physical access to care—and efficiency—maximization of health gains through reductions in the costs of production and increases in appropriate consumption. These discussions also include debate about the impact of health

financing reforms on quality of care, access by the poor, and the respective roles of the public and private sectors.

Formulating effective policies to address these issues requires sound empirical information on the demand and supply sides of the market for health services. In many developing countries, sound empirical data are seldom available and the public debate about health financing often is dominated by conventional wisdom that may not be well grounded in reality. Some examples of conventional wisdom that require empirical testing include:

- ▲ “The poor will not pay for health care services.”
- ▲ “The private sector is more efficient than the public sector in producing health services.”
- ▲ “The private sector has no role in meeting the public health agenda.”
- ▲ “Where the largest share of total health resources is spent on curative care, the allocation of resources is inefficient.”
- ▲ “Social financing and risk-sharing schemes will not be effective in poor, rural areas.”

A new body of research has begun to emerge that tests the validity of some of these common beliefs about health financing. For example, empirical studies of health care demand in developing countries have demonstrated that when given the choice, even the poorest often prefer to pay for better-quality health care rather than obtain free but low quality health services.

Public policy concerning health finance can greatly benefit from improved knowledge about such issues as the willingness of people to pay for health services, the relative efficiency of public and private providers, private sector roles, and the cost-effectiveness of investment in curative and preventive care. Yet despite the greater attention recently given to applied research in health finance, large gaps in knowledge remain.

AN AGENDA FOR APPLIED RESEARCH

HFS applied research seeks to advance knowledge in key policy areas and to develop analytical capabilities among developing country researchers. The research is designed to address key policy questions, explore neglected areas of research, improve analytical methods, and test new methodological techniques. With the review and advice of an external Technical Advisory Group, the project identified four broad areas of inquiry where major applied research was warranted: cost recovery, productive efficiency, social financing, and the private sector. To meet AID contractual requirements, the project also identified nine specific topics within these categories (see box).

HFS MAJOR APPLIED RESEARCH: AREAS, TOPICS, AND QUESTIONS		
Research Area	Phase 1 Research Topic	Main Research Question
COST RECOVERY	Quality of Care	Willingness to pay for improvements in quality
	Protecting the Poor	Design of equitable cost recovery systems
	Efficiency in Consumption	Design of monetary and other mechanisms that promote efficient patterns of demand for care
PRODUCTIVE EFFICIENCY	Public Sector Reform	Feasibility of improving efficiency in production through personnel incentives
	Reallocating Public Sector Spending	Definition of optimal allocation pattern and appropriateness of current allocation patterns
SOCIAL FINANCING	Expanding Its Role	Feasibility of risk-sharing for the poor
PRIVATE SECTOR	Development of Private Health Care Markets	Determinants and implications of private sector development
	Public-Private Differences in Efficiency	Existence of differences in productive efficiency between government and private providers
	Public-Private Interactions	Feasibility of socially beneficial collaboration between government and private sector

HFS conducted literature reviews (Phase 1) for all but one of these nine topics (the exception was reallocating public sector spending). At AID's request, an additional field research topic—an assessment of the economic impact of malaria—was also studied. Field research has been conducted (Phase 2) and analytical papers have been written (Phase 3) in all four of the major research areas. These cover the six specific topics as follows:

- ▲ Willingness to pay for improvements in health service quality in the context of cost recovery
- ▲ Impact of health service quality improvements on costs, efficiency, and demand
- ▲ Efficiency of public sector health services
- ▲ Comparison of public and private sector efficiency in health service delivery
- ▲ Impact of social financing of health services on demand, equity, and sustainability
- ▲ Development of private sector health services
- ▲ Economic impact of malaria

In addition to these applied research papers, HFS has produced a wide array of research instruments and data bases. (A list of these is provided in an HFS Theme Paper on "Data Collection as a Policy Tool.")

POLICY-ORIENTED APPROACH TO APPLIED RESEARCH

HFS has conducted all the field research activities with active collaboration and involvement of local researchers and decisionmakers. In addition, when considering alternative field sites for major applied research, HFS sought to identify opportunities where research results would feed directly into the policy reform process.

In Niger, for example, HFS provided technical assistance to the government to test two cost recovery systems for curative care in ambulatory public facilities: a fee-per-episode of illness and a household tax with a copayment. Major applied research was conducted to assess and compare key indicators under the two financing systems, including the improvements in quality of care, the costs of quality improvements, people's willingness to pay for quality improvements, and equity implications of the financing methods. Research activities were intertwined with technical assistance to design and implement improved management systems for health facilities, new management procedures for clerical personnel, and improved diagnostic and treatment practices for medical staffs.

In Senegal, HFS conducted applied research to assess various dimensions of the current health system, including the legal and regulatory framework of health financing; the effectiveness of village health committees; the costs, financing, and efficiency of public and private providers; the size, role, and evolution of the private sector; and the demand for health care. The government of Senegal is planning major regional demonstration projects to implement some of the recommendations that emerged from this research.

All HFS major applied research products undergo a formal review process that involves project staff, external experts from academic and international institutions, and members of the project's Technical Advisory Group. HFS seeks excellence in its products and welcomes comments or suggestions about its research work.

If you have questions or comments about our applied research work, please contact the Technical or Applied Research Directors. For information about or to order written HFS products on research, technical assistance, and training, please contact the project's Information Center.

Ricardo A. Bitran
Director of Applied Research

EXECUTIVE SUMMARY

BACKGROUND

Despite a stalling economy and constrained health spending, Senegal has exhibited important health gains over the past thirty years. Life expectancy has increased considerably, child mortality has been halved, and immunization rates have exceeded 60 percent. According to some health indicators, Senegal has outperformed Sub-Saharan African as a whole; according to others, however, it has lagged behind. The latter is a disturbing realization in light of Senegal's relatively higher income and greater health spending.

Like many other countries in Sub-Saharan Africa, Senegal faces many problems in its health sector. Constrained public resources, inefficiency in health services production, and skewed expenditure patterns are among the difficulties identified in the past as major barriers to improved performance. To address its problems and challenges, in 1989 the government adopted a sectoral reform package known as National Health Policy. The new policy sought to decentralize health services, redeploy government health staff, reform drug policies, and generate further financial resources for government services through cost recovery.

In response to a request by the Government of Senegal (GOS), and with funding from USAID/Dakar, in 1992 HFS carried out a study of costs, financing, and efficiency of government health care providers. The research revealed important deficiencies in the public system, including poor quality of care, inefficient use of human and other resources, a malfunctioning referral system, and inappropriate pricing practices.¹

HFS recommended to the GOS that an assessment of the private health care delivery sector should be part of a comprehensive review of issues and opportunities in health. With government support and USAID/Dakar funding, in 1993 HFS conducted a twin study of costs, financing, and efficiency of private providers. The methods, results, and findings of the private sector study are presented in this document, along with a comparison with public sector results.

The aim of the inquiry was to understand the role and performance of private health care providers, to compare their performance with that of government facilities, and to explore the potential advantages of greater public-private collaboration in the provision of health services. The study also sought to contribute with empirical information to an eminently ideological and ongoing discussion about the relative merits of public and private production of health care.

This paper constitutes Phase 3 of a three-phase HFS major applied research study in the area of Public-Private Differences in Efficiency (see HFS 1991). The Phase 1 work (Bitran 1992), considered a companion piece to this document, presented a review of the literature and experiences on the measurement of health services costs and efficiency, and a preliminary research design for the field work (Phase 2) in Senegal. The study of government provider costs, financing, and efficiency (Bitran, Brewster, and Ba 1994)—another Phase 3 HFS document in the area of Public-Private Differences in Efficiency—should also be considered a companion paper to this document.

¹ In response to study findings, GOS officials have pointed out that many of the difficulties identified are currently being tackled through the sectoral reform initiatives mentioned above.

METHODS

The study used a nationally representative sample of 95 government and 57 private providers. Four major groups of private health care providers operate in Senegal: Catholic health posts, company clinics, private for-profit providers, and other providers with an institutional affiliation, like the Red Cross and Muslim dispensaries. The private providers sample was drawn from each group using the criteria that private facilities to be selected (1) follow closely the geographic distribution of government facilities from the previous study; (2) be as comparable as possible to public facilities.

A sample of 57 private providers included in the private sector sample were 30 Catholic health posts, 13 company clinics, 6 for-profit clinics, and 8 other dispensaries representing about 43 percent of the universe. Individual provider offices, estimated at 200 in Senegal, and traditional healer practices were not included in the study because they did not meet the selection criteria. A separate study should seek to obtain information about these two important provider groups.

From each of the 57 private providers in the sample, data on costs, financing sources, utilization, and quality of care were collected by a team of specially trained enumerators.

FINDINGS

SCOPE AND QUANTITY OF HEALTH SERVICES

With the exception of for-profit dispensaries, that provided curative care only, all other categories of private providers supplied both curative and preventive services. Among the preventive services offered in both the private and public sectors were health education, immunization, preschool and prenatal care, and family planning.

Of all providers, public and private, government hospitals delivered the highest volume of outpatient output, followed closely by government health centers. Among private providers, Catholic health posts and for-profit dispensaries delivered the highest and lowest volume of ambulatory care, respectively.

Among private providers, only for-profit dispensaries delivered an important volume of inpatient care (hospitalizations and deliveries). "Other" private providers supplied only a small amount of hospital services while Catholic posts and company clinics did not provide any. Inpatient care output in government hospitals and government health centers exceeded that of for-profit private providers by a factor of eight and four, respectively.

COSTS

Total production costs of private providers varied widely across and within provider categories, reflecting differences in output volume, service mix, and efficiency. A large difference also existed in average costs of outpatient visits in ambulatory facilities. Private company clinics had the highest average cost per visit, about \$16. In contrast, government health posts and Catholic health posts exhibited a much smaller, though similar average cost of about \$1.00 per visit. The wide difference in average cost between company clinics and the two other providers did not seem to reflect important differences in the quality of services. The company clinics had similar, not higher, rankings on the quality measures as the Catholic health posts.

Compared with government facilities, private providers spent a lower percentage of their budgets on personnel and a higher share on pharmaceutical products. Quality of care for curative services was better in the private sector to a large extent because of the superior availability of medicines to treat patients.

LABOR PRODUCTIVITY

Labor productivity, measured as the average number of visits per health worker per day was considerably higher for outpatient care in the private sector than among public providers. A wide variation in productivity also existed within the private sector.

Compliance with treatment norms was highest among private providers, suggesting that their higher productivity was not the result of lesser attention to medical practices. To the contrary, it appeared to reflect greater technical efficiency in the use of medical labor.

PRICING

User fees in government health facilities have existed for years in Senegal and have become even more pervasive in non-hospital facilities since 1991, with the country-wide adoption of the Bamako Initiative.²

The study revealed a great deal of diversity in pricing practices within the private sector. Private sector prices for a curative visit ranged from a low of about \$1.00 in Catholic health posts and "other" private facilities to a high of about \$30 in for-profit dispensaries. For inpatient care, private sector prices reached \$170 for a hospitalization at a for-profit clinic but were as low as \$3.00 in "other" private dispensaries. Prices of preventive services were usually slightly inferior to those for curative care.

The HFS surveys found that private providers generally charged higher fees than government providers. Among private providers, Catholic health posts charged the lowest prices. In providing ambulatory care, Catholic posts were as expensive as government hospitals, and about twice as expensive as government health centers, posts, and huts. For inpatient care, for-profit clinics were about 12 times more expensive than government hospitals, while the price of a hospitalization in "other" private dispensaries fell within the price range observed among non-hospital government facilities. The study shows that government and private facilities charge user fees for preventive as well as curative services.

² Public sector prices reported in this study were those that prevailed shortly before the adoption of the Bamako Initiative (BI). It is presumed that prices increased after the adoption of the BI.

FINANCING

Aside from Catholic health posts, other private providers refused to disclose revenue information. It is presumed, however, that since the latter do not receive any subsidies, they self-finance through user fees. Catholic posts were able to recover virtually all of their recurrent costs from user fees, with a small part (less than 5 percent) coming from smaller private gifts and subsidies. Except for the self-financing health huts, government health facilities exhibited significantly smaller cost recovery rates, varying from a low of 8 percent in public hospitals to a high of 28 percent in health posts.

QUALITY

The study measured three dimensions of quality: input availability, provider compliance with treatment norms, and perceived quality of care by both patients and facility staff. Time and budget constraints precluded an assessment of health status changes after treatment, a more desirable measure of health outcome and thus of quality.

Private providers generally had adequate inventories of drugs and rarely experienced stockouts. This contrasts sharply with public sector providers, particularly those outside Dakar, the majority of which experienced stockouts for most products. Similar contrasts were found in the availability of basic medical supplies. Within the private sector, for-profit providers most often complied with standards for diagnosis and treatment although neither private nor public sector facilities scored well against the prescribed norms.

Patients in both private and public facilities generally reported being satisfied with the treatment they received and indicated that they would return for future treatment. Also, most health staff in private facilities ranked the quality of their services as being high, while only a small percentage of the staff in public facilities did so.

DISCUSSION

The aim of the inquiry was to understand the role and performance of private health care providers, to compare their performance with that of government facilities, and to explore the potential advantages of greater public-private collaboration in providing and financing health services in Senegal.

The debate about the appropriate role of the private sector in health care delivery has been primarily ideological. Those who favor privatizing government health services often argue that the private sector is more efficient; those who favor a stronger role for the public sector often do so based on a mistrust of private sector providers, which they feel seek their own gain at the expense of society. There is little empirical basis to support either of these views. While inefficiencies in government health services have been well documented, there has been little research that compares the performance of public and private providers.

Data on public and private health provider performance from Senegal reflect characteristics typical of many other sub-Saharan countries. These data have implications for adapting public policies toward the private sector in Senegal and elsewhere in the region, to take advantage of quality and efficiency that private providers have achieved, and to promote improvement where weaknesses exist. They also provide indications

of ways in which the public sector could improve efficiency of its health care service delivery. Action on both these fronts could expand access to quality care for the national health system.

POLICIES TO EXPAND ACCESS THROUGH PRIVATE PROVIDERS

Evidence of variation in efficiency in the private sector suggests that Ministries of Health cannot make automatic assumptions about the relative efficiency of private and public health providers. Neither can they make generalizations that apply to the private sector as a whole. Ministries need to develop more complex policies with regard to the private sector that take into account variations that exist among different types of private providers, such as religious, for-profit, company-based, and general charitable organization providers, and traditional practitioners.

Similarly, evidence of both high and low quality among private sector providers indicates that Ministries need to review the need for regulation of private providers to assure quality. They also need to review circumstances that facilitate higher quality and efficiency in the private sector to see what characteristics might be adopted to improve public sector performance. Efforts could be made to encourage, or remove obstacles to, growth of the private providers who provide high quality, efficient care. Analyses need to identify what aspects of quality private providers excel in (best practices), what incentives and conditions exist in the private sector to encourage high quality, and what is required to identify poor quality private providers and to either improve them or discourage patients from using them (e.g. regulation, public information).

The potential for expanding access to health services by greater reliance on private sector providers is affected by a variety of factors (e.g., existing number, size of operation, and geographic distribution of those providers; patient ability to pay the range of prices charged that are designed to recover the full cost of services, as well as profit in most cases; provider preferences for selected packages of services they want to offer and populations they want to serve). In addition, there are many possible mechanisms for financing private provision of health services to a broader population, or to the poor, as a substitute for government providing these services directly, (e.g., vouchers for patients to use at private providers of their choice; direct billing and reimbursement; direct subsidies to private providers through tax incentives, grants, annual budget allocations; contracting out).

Variation across countries in the combination and characteristics of private sector providers in each country, and in the relevance of various financing options, means that each option needs to be assessed in specific country contexts. There has been growing discussion in recent years about the actual and potential role of the private sector in health in developing countries and increasing experience with various options for public use of, influence on, and support for private sector health service delivery. (Bennett and Mills eds. 1994) But generalizations for efficient combinations of public provision and public financing of private providers are not yet possible in sub-Saharan African settings. More country-specific analysis and experimentation needs to be conducted to develop specific assessments of the most cost-effective allocation of government funds between public and private sector providers.

POLICIES TO IMPROVE EFFICIENCY IN THE PUBLIC SECTOR

Evidence of inefficiencies in the public sector demonstrate the high potential for benefits that could be gained from better allocation of existing resources within the public sector—and using the reallocated resources to improve access, or quality, or both in the public sector.

Links between quality and efficiency. This study's review of efficiency in the public sector revealed low health worker productivity and an inadequate level of medical and other supplies for the available personnel. In addition, while the average costs of care at public outpatient health facilities were relatively low, and lower than some private outpatient facilities, they were equal to or higher than others. The lower public sector costs for outpatient care are more likely to reflect lower quality rather than greater efficiency in resource use. Indeed, low quality in public health facilities is likely to be one of the principal causes of low health worker productivity.

For example, lack of drugs and medical supplies reduces demand for government health services and leads to under-utilization of health personnel. Skewed distribution of resources towards personnel, with inadequate funding of medicines and supplies needed for them to practice effectively, undermines attempts to offer effective care and also renders personnel less productive. Poor compliance with treatment protocols dilutes the efficacy of service delivery. Optimal efficiency of health services cannot be achieved in these circumstances.

Thus, under circumstances of both low efficiency and low quality, Ministry of Health policy makers may not be confronted with the normal trade-off between quality and efficiency. The comparison of the study's public and private health sector data suggests that one category of private sector provider, Catholic health posts, has achieved both higher efficiency and higher quality than comparable government facilities. This finding suggests that policy makers may be able simultaneously to improve both the quality and efficiency of MOH facilities.

Links between drug policies, quality, and efficiency. In addition, findings from this study, as well as others, show that assuring an adequate supply of basic medicines is not only needed for purposes of improving quality at public sector health facilities. It is also needed to improve efficiency. Assuring an adequate stock of basic drugs simultaneously improves effectiveness of health personnel, attracts patients to the facility, and improves worker productivity by increasing the number of patients treated.

These findings suggest that appropriate drug policies are likely to be among the single most important policy actions that could simultaneously improve efficiency, quality, and effectiveness of health care. They reinforce recommendations made elsewhere that Ministries of Health pay particular attention to drug purchasing and distribution policies, training for health workers in appropriate drug prescription practices, and use of lower cost generic medicines.

Nevertheless, improving drug supply in the public sector in ways that also improve efficiency can have difficult consequences for personnel policies in Senegal and in many sub-Saharan African countries. For example, given overall government budget constraints, achieving a more appropriate balance between personnel and medical supplies is likely to require significant shifting of funding from personnel salaries to medicine and other supply expenditures. Similarly, achieving higher personnel productivity is likely to require significant redistribution of personnel across facilities. Both these policies face substantial political constraints.

Nevertheless, as data presented here show, where there are clear and substantial inefficiencies in health service delivery in the public sector, benefits to be gained from a more efficient allocation of resources are also likely to be substantial for prospects of expanding access to quality care.

CONCLUSIONS

Findings from this study demonstrate the usefulness of conducting a broad assessment of key indicators of quality and efficiency across all categories of public and private sector health providers. Such studies can provide a first step in identifying important aspects of overall efficiency of resource allocation in the health system and the potential for benefits to be gained from improvements. They can help identify areas where more detailed analysis would be fruitful. They can also reveal important variations between the public and private sectors, and within each sector, that help Ministries of Health assess which types of providers may have achieved the greatest efficiency and quality, as well as where weaknesses exist that will require action.

Results of the applied research in Senegal also bear direct relevance to other sub-Saharan African countries which are considering policies to improve access to quality health services . These data show that there can be important differences in efficiency and quality within the private sector and between the public and private sectors. These differences have implications for public sector policies toward private providers of health care, as well as for efforts to improve access to quality care through services provided or financed by the government.

Relationships that this study identified between quality and efficiency suggest that strategies to improve quality can increase efficiency, raise demand for services, and thereby expand access. Considering people's demonstrated willingness to pay for quality improvements, such strategies can also help generate funds to sustain the quality and efficiency improvements.

Lack of resources is often cited as a major obstacle to improved performance of government health operations. Whereas resource constraints are undoubtedly a central problem, evidence of poor performance that this study has presented suggests that the development of mechanisms that improve efficiency should accompany, if not precede, any policies that seek to expand the pool of resources devoted to government-provided care.

1.0 INTRODUCTION

1.1 HEALTH CARE AND THE PRIVATE SECTOR

In most developing countries, the government has historically assumed the primary responsibility for financing and delivering health care. Over the past two decades, however, multiple constraints and expanding demands have revealed the limits of governments' reach and the consequences that these limits bring about. Reducing the role of the government, enhancing that of the private sector, or both, are policy questions that have come to the fore.

Active government participation in health care financing appears to respond to a central concern for equity. Access to a basic package of health services is increasingly viewed by many as a right of all individuals, irrespective of their ability to pay. Government intervention comes in the form of free provision of basic care to remove financial barriers to access.

Government engagement in production is often defended on the grounds of equity as well. In some circumstances it can be argued that, unless the government itself produces certain health services, these services will not be offered at all, thus resulting in an inequitable situation. This is usually the case of hospital services in sparsely populated and poor rural areas.

The leading role of governments in health markets has become the target of criticism worldwide. Among the most ardent critics are some economists. They base their judgement on the analysis of two fundamental economic measures: equity and efficiency. They contend that despite good intentions, excessive government participation in the health economy actually harms social welfare by reducing both equity and efficiency.

The discussion about the role of the private sector in health care production can easily become—and mostly has been—ideological. One commonly hears statements like "let's privatize government health services because the private sector is more efficient." While it is true that in other fields of the economy the private sector has been shown to be more efficient than the government, in the health sector of developing countries there is very little if any solid empirical evidence of that sort. Indeed, our review of the published literature and unpublished experiences about public-private productive efficiency yielded only a handful of studies, most weakened by poor data and questionable methods.³ A rather rich, solid, and growing body of evidence has accumulated, however, about the inefficiency of government health systems.⁴

The ideological debate goes both ways. In fact, the resilience of policies that confer on the government a leading and sometimes exclusive role in production rests on ideological statements such as "the private sector is bad because private providers seek their own gain at the expense of society's." It is this type of reasoning that has retarded the onset of a healthier debate that puts ideology aside and that rests on hard facts instead.

³ See Bitran (1992).

⁴ See Barnum and Kutzin (1993); and World Bank (1987 and 1993).

The efficiency implications of government intervention in health care production are the central topic of this applied research. An important policy question that we explore is whether health system efficiency could be enhanced by reducing the role of the government in production while expanding that of the non-governmental sector. This question obviously cannot be answered satisfactorily in theory, nor can it be answered in general for all countries and circumstances. What can be done, and what we attempt to do here, is to contribute empirical evidence from one country, Senegal, to the policy debate.

In this research we have drawn a nation-wide, representative sample of government and non-governmental health care providers from Senegal, gathering through surveys primary data about output, costs, financing, resource use, and quality of care. We have derived efficiency measures and compared them across providers.

1.2 STUDY BACKGROUND

In 1991 the Government of Senegal (GOS), via the interministerial *Comité de pilotage* (Steering Committee), requested several studies on health care financing in the health sector. The studies were intended to provide information needed to diagnose problems and formulate reform in the government sector. These studies were

- ▲ Synthesis of Health Care Financing Literature
- ▲ Legal Framework of Health Care Financing
- ▲ Costs, Financing, and Efficiency of Government Health Facilities
- ▲ Health Care Financing in Senegal: Determinants of Health Committee Effectiveness

All four studies were financed by USAID/Dakar and carried out by AID's HFS project. A brief description of each study follows.

Synthesis of Health Care Financing Literature

In the first of the four studies, Barlow, Diop, and Sene (1991) reviewed and synthesized 39 reports on health care financing in Senegal written since 1980. The authors found that previous researchers had concentrated their inquiries on a few topics, while several important subjects had been neglected. Well-documented questions included financial management in government hospitals and pharmaceutical procurement. Among the under-explored issues were the legal framework for health care financing, the role of non-governmental providers in health, and health care consumption and expenditures by households.

Legal Framework of Health Care Financing

A second study that sought to fill a gap of knowledge identified by Barlow et al. was *Legal Framework of Health Care Financing* (Dieng and Barlow 1991). The study gathered legislation relative to health care financing; analyzed the laws to assess their enforcement, compliance, and effects on financing; and made preliminary proposals for modifying the legislation.

Cost, Financing, and Efficiency of Government Health Facilities

The goals of this study were (1) to provide information to strengthen the Ministry of Health's budgeting process and the central level and (2) to identify measures for improving the productive efficiency of public providers. A companion report to this paper, by Bitran, Brewster, and Ba (1994) presents study methods, results, and policy implications. A nationally-representative sample of 95 government facilities (3 regional hospitals, 23 health centers, 46 health posts, and 23 health huts) was drawn and primary data collected for FY91. The research also sought to fill several gaps in the literature identified by Barlow et al.

The study identified several inefficiencies in the government health system. They included

- ▲ Low and geographically uneven personnel productivity
- ▲ Poor quality of care, as measured by technical standards and through patient and staff perceptions
- ▲ Widespread shortage of basic medical supplies and drugs at all levels of the system, from hospitals to health huts
- ▲ Insufficient financial resources yet low user fees
- ▲ Inefficient pricing system in government facilities: user fees for preventive care were as high as those for curative care; referral fees did not exist; hospital prices were only marginally higher than prices in lower level facilities
- ▲ Seemingly malfunctioning referral system, with hospitals and health centers referring an important share of their patients to higher level facilities
- ▲ Lack of accounting and information systems necessary for efficient management and decision making

The study recommended that the Government of Senegal should

- ▲ Lay off or redeploy personnel of government facilities
- ▲ Improve health care quality by adopting protocols for diagnosis and treatment and by training and supervising medical personnel
- ▲ Ameliorate quality of care by improving the availability of basic medical supplies and drugs
- ▲ Revise the fee structure and the cost recovery systems in place
- ▲ Analyze the structure of the market for pharmaceutical products; explore the current performance of the National Pharmacy and its ability to meet demand; propose pharmaceutical market reform
- ▲ Identify and overcome problems causing inappropriate referral patterns
- ▲ Design and adopt improved accounting and management information systems
- ▲ Adopt and enforce an essential drugs policy.

Health Care Financing in Senegal: Determinants of Health Committee Effectiveness

Concurrently with the research on public sector performance, HFS carried out a fourth study entitled *Analysis of Health Committee Performance* (Thioune 1993), using a case study approach and a sample of 27

health committees (3 hospitals, 10 health centers, and 11 health posts). This study was also in response to the lack of information, identified by Barlow et al. about the role that the local communities' Associations for Health Promotion played in health care financing. Through interviews of committee members, population representatives, and health facility personnel, the study sought to identify factors affecting the effectiveness of health committees.

In addition to the completed research described above, HFS is currently conducting three supplementary pieces of research, including the one whose results are presented in this document. They are:

- ▲ Analysis of Household Health Care Demand
- ▲ Study of Private Sector Development
- ▲ Public-Private Comparative Study of Costs, Financing, and Efficiency (presented in this report)

Health Care Demand

A survey of household consumption patterns, known as the Priority Survey, was undertaken by the World Bank's Social Dimensions of Adjustment (SDA) Program in 1991. A preliminary analysis of this information was performed by the World Bank.⁵ USAID/Dakar made additional funding available and requested that HFS undertake further analysis of health care expenditure, consumption patterns, and demand. By adding information about the demand, or consumer side of the market, this analysis is expected to complement the supply-based study of costs, financing, and efficiency. The sampling framework for health care providers is similar to that adopted by the World Bank's household survey and therefore HFS expects to be able to match facility with household data. The household study may provide information otherwise not available to HFS, such as patterns of provider choice, use of traditional medicine, home care, and self-medication. This research is now underway and is expected to conclude in mid-1994.

⁵ See Republic of Senegal (1993).

Private Sector Development

An analysis of determinants of private sector development in health is being conducted by the HFS project in Senegal with the financial support of AID's HHRAA project. The study will provide a picture of current private provision of health services, document the development of these services over time, and identify determinants of sectoral development. The research will consider government policies, within and outside of the health sector, and factors beyond government control affecting private sector development.

Comparative Analysis of Costs, Financing, and Efficiency in the Public and Private Sectors

The relative efficiency of public and private providers of health care is a highly relevant policy question yet one that lacks empirical answers. If private providers were found to be more efficient than the government, there would be potential social gains associated with government-subsidized, private provision of care. Owing to its importance, *Public-Private Differences in Efficiency* is one of nine areas for major applied research identified by HFS in its Applied Research Agenda (HFS 1991). The result from this research, presented in this paper, are expected to contribute to existing knowledge by answering the following policy and methodological questions:

- ▲ How efficient is the government sector in producing health services?
- ▲ How efficient is the private sector?
- ▲ What is the relative efficiency of both sectors?
- ▲ Could government subsidies be used more efficiently by relying partially or fully on government-subsidized, private sector provision of care?
- ▲ What mutually beneficial collaboration can be undertaken between the public and private sectors?
- ▲ What measures can be taken to improve productive efficiency in government and private facilities?
- ▲ How useful are various methods used for measuring efficiency ?

To perform a comparative analysis of costs, financing, and efficiency, a survey of non-governmental providers of health care was undertaken by HFS, following the survey of public providers. Funding for the private sector study was also made available by USAID./Dakar. Survey instruments, research methods, and reference period were the same in both studies. This document presents information about the performance of non-governmental providers and compares it with that of public providers. A separate document (Pogodzinski, forthcoming) examines relative efficiency of public and private providers using statistical and econometric analysis.

This paper constitutes Phase 3 of a three-phase HFS major applied research study in the area of *Public-Private Differences in Efficiency* (see HFS, 1991). The Phase 1 work (Bitran 1992) presented a review of the literature and experiences on the measurement of health services costs and efficiency and a preliminary research design for the efficiency work in Senegal and elsewhere. The Phase 1 paper is a companion piece to this document. Phase 2 was the field data collection work.

1.3 STUDY GOALS AND OBJECTIVES

Based on a sample of non-governmental health care providers (see description of the sampling frame in Section 3), the goals of this study are to:

- ▲ Provide information about relative performance indicators of public and private health providers, to explore potential social gains associated with greater public-private collaboration in financing and provision of health care; and
- ▲ Propose policy reform measures that may permit greater collaboration between the two sectors, were this collaboration deemed socially desirable.

The principal objectives of the study are to:

- ▲ Gather information on utilization
- ▲ Measure health facility total and unit costs for the main curative and preventive services delivered
- ▲ Measure quality of care, both technical and perceived;
- ▲ Derive measures of technical and economic efficiency from the information on costs and quality
- ▲ Identify health care financing sources, including user payments, community contributions, government budgetary support, and donor funding
- ▲ Describe cost recovery methods and levels
- ▲ Compare the above information for governmental and non-governmental providers

1.4 ORGANIZATION OF THE REPORT

The remainder of this document is organized as follows. To facilitate interpretation of methods and results, in Section 2 we first present definitions of important technical concepts used in the study. Section 2 also presents study methods, including sampling criteria, data collection, and analysis. Section 3 contains study results and Section 4 provides conclusions and policy recommendations. Appendix A contains additional exhibits, Appendix B provides additional graphs, and Appendix C lists the HFS studies undertaken in Senegal.

2.0 METHODS

This section presents definitions of key technical terms used in the research. It then explains the study design, execution, and analysis, and it describes the data collection instruments and sampling methods used to select non-governmental facilities and patients and staff within facilities. The study covers the period of July 1, 1990-June 30, 1991, i.e., Senegal's fiscal year 1991 (FY91).

2.1 DEFINITIONS

In this section, we define the following concepts:

- | | |
|-------------------------------------|--|
| ▲ Cost | ▲ Economic Efficiency |
| ▲ Total Cost and Unit Cost | ▲ Efficiency Measurement |
| ▲ Cost and Expenditure | ▲ Health Output, Health Outcome, and Provider Efficiency |
| ▲ Economic Cost and Accounting Cost | ▲ Allocative Efficiency |
| ▲ Technical Efficiency | |

Cost

The cost of producing a health service is the monetary value of all resources employed in production. Generally, many inputs are required to produce a service. These include various categories of labor (doctor, nurse, accountant, porter), supplies (medicines, syringes, alcohol, food), and equipment and buildings (microscopes, X-ray machines, vehicles, beds, and facilities).

Total cost and unit cost

Total cost is the sum of all costs incurred to produce a certain volume of services. Economists and accountants alike are interested in measuring total cost. However, economists have a particular interest in measuring the cost of one unit of service, or the *unit cost*. For example, the economist may ask: how much does it cost to vaccinate one child, or what is the unit cost of vaccinating a child? Two measures of unit cost are commonly used: *average cost* and *marginal cost*. Average cost is total cost divided by the number of units produced. For instance, if TC is the total cost of vaccinating Q children, then the average cost of vaccinating one child is the total cost divided by the number of children vaccinated, or TC/Q . Marginal cost is the cost that the provider must incur to produce one additional unit of service, for example, the additional cost that the facility must incur to vaccinate child number $Q+1$. Generally, average cost and marginal cost differ. Each measure conveys useful but different economic information.

This report focuses on the estimation of total facility cost and average cost. The concurrent econometric analysis of government and private sector provider costs (see Section 1) derives estimates of both average and marginal cost.

Cost and Expenditure

For notational convenience, the terms cost and expenditure are used interchangeably in this paper, although what we actually measure is expenditures. Because expenditures tend to capture cash outlays only, expenditures are generally smaller than actual total costs. Examples of costs that are often left out of expenditure records are depreciation and training.

A thorough measurement of cost requires that all inputs used directly or indirectly in production be valued. The cost information provided in this study comes from facility records, but unfortunately, these did not value all production inputs. For example, facility records did not include any information about investment and depreciation costs for equipment, vehicles, and buildings. The study team thus collected information about number, type, and condition of equipment, vehicles, and buildings, with the aim of deriving their cost using centrally obtained information about investments, market value, or depreciation.⁶ Also, facilities did not always keep information about payments made for purchases of pharmaceutical products. The team thus collected data on supplies consumed during the one-year reference period, and then derived expenditure figures based on price information obtained at the local or central level. Given the vast number of products consumed, this proved time-consuming.

Economic Cost and Accounting Cost

Economists generally compute the cost of resources used in production based on the value that society assigns to those resources. Such a value is known as *social price* or *shadow price*. Accountants, in contrast, commonly measure cost based on the amount of cash that is used to purchase the inputs consumed in production. These measures often differ. For example, accountants record the cost of pharmaceuticals consumed as the amount of money paid to the suppliers of such products. Economists, in contrast, may adjust such a payment upward or downward if they believe that the local currency is under- or over-valued relative to the foreign exchange used to purchase such imported products. Alternatively, economists may assign a cost of zero to an asset with no economic value, while an accountant, complying with reporting regulations, may continue for years to account as a cost the depreciation of such an asset. In this report the accounting approach is used to compute cost, i.e., cost information provided reflects cash payments made for the labor and supplies consumed in production.

⁶ In the end, time and data availability constraints meant that the research team was unable to include depreciation in its cost estimates.

Technical Efficiency

Two important concepts intervene in the analysis of efficiency of a production process: *technical efficiency* and *economic efficiency*.⁷ A procedure is technically efficient if production inputs (e.g., labor, drugs, equipment) are combined in a way that yields the maximum feasible output (e.g., outpatient visits, hospitalizations).⁸ Thus one procedure is considered more technically efficient than another if it either produces the same quantity of output using fewer inputs, or produces a greater quantity of outputs using the same inputs. The measurement of technical efficiency does not incorporate any information about input prices and cost; it deals exclusively with physical quantities of inputs.

Economic Efficiency

Economic efficiency extends the concept of technical efficiency to take into account the prices of production inputs. A procedure is economically efficient if inputs are combined to produce a given level of output *at minimum cost*. In general, while there may be many technically efficient alternatives to produce a given quantity Q, there is only *one* economically efficient way of doing so.⁹

In this study we deal with both efficiency concepts—technical and economic. To assess technical efficiency, output levels are related to input levels. For example, we measure the number of outpatient consultations produced by one doctor per day. To estimate economic efficiency, output is related to production cost.

To be economically efficient, a provider must combine production inputs in the least expensive way to achieve any given level of output. In addition, he must purchase production inputs at the lowest available prices. In many cases, particularly in centralized systems where producers have little to no freedom over the selection of suppliers and thus over input prices, their only way of improving economic efficiency is by combining the resources in the least costly manner. Rigidities in the acquisition of resources, however, sometimes limit the ability of facility managers to minimize their production cost. This is often the case in highly centralized systems, where decisions about resource levels, particularly labor, are made by upper-level decision makers, sometimes in a fashion that is unresponsive to local needs.

Efficiency Measurement

Three factors make the measurement of efficiency a challenging exercise.¹⁰ First, quality of care generally varies among providers. Unless quality is measured and adjusted for, efficiency measurements may be mistaken. For example, consider two providers, one who uses small amounts of inputs to produce a low-

⁷ Health service researchers in the U.S. use the terms "efficacy" to refer to technical efficiency and "appropriateness" to denote economic efficiency.

⁸ Pauly (1970), p.114

⁹ There are some unusual production processes which will display more than one economically efficient configuration.

¹⁰ See Barlow and Kutzin (1993) and Bitran (1992) for more discussion about efficiency measurement.

quality service and another who uses more resources to produce a better-quality product. Assume that the two produce the same volume of services (e.g., equal numbers of deliveries). If quality is not taken into account, one may wrongly conclude that the provider who uses fewer resources (the low-quality provider) is the most efficient. If quality is considered, however, a different picture may emerge.¹¹

To measure efficiency, the researcher must ask: At a given quality level, which provider produces a given volume of service with the smallest quantity of inputs (technical efficiency) or at the lowest cost (economic efficiency)?

Second, case mix also varies from one provider to another, complicating the measurement of efficiency. For example, one may produce mainly normal deliveries while another may deal more with complicated deliveries. Because complicated deliveries are more resource-intensive, the difference in patient case mix must be considered before making any inferences about efficiency.

Third, stated prices of production inputs, such as labor and pharmaceuticals, may not reflect the true social cost, or shadow price, of those resources. Accurate estimates of social efficiency should be based on social price data. Unfortunately, that information is hard to obtain.

Much of the data collection effort for this study was devoted to the measurement of quality of care and case mix. Social prices were not obtained, and thus the study bases its estimates of cost and efficiency on provider-stated prices. Two aspects of quality of care were assessed: technical and perceived. Technical quality was gauged by measuring availability of production inputs and provider compliance with standard norms of care. Perceived quality was measured from both patients and health workers. Case mix information was obtained through careful recording of facility output, i.e., the types and volumes of services delivered during the reference year.

Health Output, Health Outcome, and Provider Efficiency

Health output represents the medical services produced by the health system. Examples of output are office visits, children immunized, and assisted deliveries. *Health outcome* is the effect of health outputs on the health status of individuals. For example, the output *vaccinations* produces the outcome *reduced infant and child mortality*. The ultimate goal of health interventions is to improve health status. Thus, to assess the efficiency of a health system, one should focus on the intervention's health outcomes. Unfortunately, measuring the outcomes of specific interventions or providers is difficult, because many factors other than health care affect people's health status. To simplify the problem, in this study we base our measurements of efficiency on the output of providers. To reduce the errors associated with this simplification, we measure quality of care. To measure provider efficiency, we relate input to output, controlling for quality of care. Our assumption is that two providers using the same amount of input to produce the same volume of output of equal quality are equally efficient.

Allocative Efficiency

¹¹ This example in no way implies that higher-quality providers are always more costly. The opposite can be true.

A health system is efficient if resources are allocated among levels, facilities, and services to achieve the highest possible level of output or outcome. Allocative efficiency is a broader concept that also implies technical and economic efficiency. This study looks primarily at technical and economic efficiency at the facility level but it also attempts to arrive at conclusions regarding overall system efficiency. This is done by comparing efficiency among facilities of a given kind (e.g., various health centers in different regions), and across different types of facilities (e.g., government health centers and health posts, or government health centers and Catholic health posts).

2.2 STUDY DESIGN, EXECUTION, AND ANALYSIS

The study design followed closely that of public providers (Bitran, Brewster, and Ba 1994). A nationally representative sample of non-governmental providers was drawn. Specially designed questionnaires were used to gather facility-level information about costs, financing, utilization, and quality of care. Differences in data recording habits between government and private providers required that questionnaires be marginally adapted from those used in the public sector survey. To make comparisons possible, however, the types of information collected matched exactly those from the earlier study. Data were gathered by a team of twelve trained enumerators, most of whom had participated in the previous data collection effort in the public sector. *Exhibit 2-1* provides an overview of the types of information obtained through this survey.

2.3 SAMPLING

Sample selection criteria were (1) that the geographic distribution of private facilities follow closely that of government facilities of the previous study (Bitran, Brewster and Ba 1994); (2) that private facilities be as comparable as possible to public facilities—comparability was based on diversity of services offered (more than just curative ambulatory visits was required); and (3) that the providers were willing to participate in the effort and meet the study's information requirements.

Four types of non-governmental providers were identified and included in the study:

- ▲ Catholic health posts
- ▲ Company clinics
- ▲ Private for-profit providers
- ▲ Other providers, including the Red Cross, Muslim dispensaries, and army health posts

Catholic Health Posts

Various types of non-governmental providers operate in Senegal. Possibly the largest and most uniform group is the Catholic network of health posts. These are found throughout the country and number approximately 70. The network's directive body was contacted by the study team and agreed to participate in this research.

**EXHIBIT 2-1
STRUCTURE OF SURVEY INSTRUMENTS**

Costs, Financing, and Utilization			Quality
Costs	Financing	Utilization	
<p>(1) In matrix form, facility staff classified according to payer category.</p> <p>Payer categories included:</p> <ul style="list-style-type: none">▲ User fees▲ Donor funding▲ Other sources <p>For each staff category the following information was recorded:</p> <ul style="list-style-type: none">▲ Number of staff▲ Average annual salary▲ Total payroll <p>(2) Investments in equipment and buildings.</p> <p>For equipment, information on was gathered (<1 year; 1-5 years; 6 years or more)</p> <p>For buildings information on surface and age of wards was obtained</p>	<p>(1) Payroll payments by the three sources of funding listed under the previous column</p> <p>(2) For each service offered, the following information on cost recovery was sought:</p> <ul style="list-style-type: none">▲ Price▲ Revenue for 1 year reference period▲ Percentage of non-paying patients <p>(3) Sources and uses of funds matrix, including all recurrent costs as uses (rows) and all three sources of funds (columns)</p>	<p>(1) In matrix form, this section collected data on units of service provided for children and adults (rows) by personnel category (columns). Services recorded included:</p> <ul style="list-style-type: none">▲ Curative outpatient visits and episodes▲ Prenatal visits and episodes▲ Growth monitoring visits▲ Family planning, new and old acceptants▲ Family planning products distributed▲ Cases of diarrhea treated with oral rehydration salts▲ Vaccinations (BCG, 3 DTCO doses, measles, yellow fever)▲ Hospitalizations (wards, isolation, maternity)▲ Hospitalization days▲ Supervisory visits to lower level facilities <p>Medical staff listed included:</p> <ul style="list-style-type: none">▲ Doctor▲ Nurse▲ Midwife <p>(2) Number of laboratory and radiology exams provided, distinguishing between outpatients and inpatients</p> <p>(3) Volume of drugs prescribed for a selected list of about 40 frequently used drugs accounting for 80 percent or more of the total value of drugs dispensed</p>	<p>(1) For medical equipment and vehicles, number of functional units during reference year</p> <p>(2) For drugs and other medical supplies:</p> <ul style="list-style-type: none">▲ availability of product at the time of the survey▲ Duration of stockouts during reference year <p>(3) For medical staff, number of employees who received refresher training over past two years</p> <p>(4) Cleanliness of premises and availability of</p> <ul style="list-style-type: none">▲ hygienic services▲ electricity▲ potable water▲ treatment protocols for selected health problems▲ family planning supplies▲ laboratory exams <p>(5) Observation and assessment of medical staff compliance with standard diagnostic and treatment practices for:</p> <ul style="list-style-type: none">▲ sample of patients showing up with fever or diarrhea as main symptom▲ sample of deliveries▲ sample of patients undergoing several routine medical procedures (drawing blood samples, blood transfusion, disinfection of wound, injection, weighing) <p>(6) Personnel quality perception, including:</p> <ul style="list-style-type: none">▲ availability of basic medical supplies▲ self-assessment of quality of care in facility▲ assessments of quality improvements required in facility <p>(7) Quality perceptions by a random sample of patients</p>

As with the public sector study, an effort was made here to obtain a nationally representative sample of providers within the study budget. Accordingly, 30 or about one-half of the universe of Catholic health posts, were selected from the five regional groupings and the capital city of Dakar.

Company Clinics

Company-owned clinics constituted a second group of non-governmental providers. In Senegal, as in most other neighboring countries, some firms set up their own health services that include a small clinic or health center. Most companies that run health services were state-owned but functioned in an autonomous fashion as para-statal. Approximately 10 such firms operate in the country, with 2 having a service in each region and with about 3 to 4 having more than one facility in the same site. All were contacted and expressed eagerness to participate in the study. However, many of the regional facilities turned out to have low output levels and therefore were not included in the complete survey effort. Thirteen remained in the survey. Some company clinics provide services to non-company patients on a fee-for-service basis.

Private For-Profit Providers

Over 200 private practitioners are licensed in Senegal, the vast majority offering only office visits for curative care. However, most of the 200 were individual provider offices offering curative ambulatory care only and thus only a handful met the second selection criterion about diversity of output. There was also about another 20 private for-profit maternities, but none of these meet the second criterion. Of the remaining 15 that met the selection criteria, 7 turned out to have unacceptably low medical output and another 2 subsequently refused to provide financial information, leaving a final sample of 6 providers.

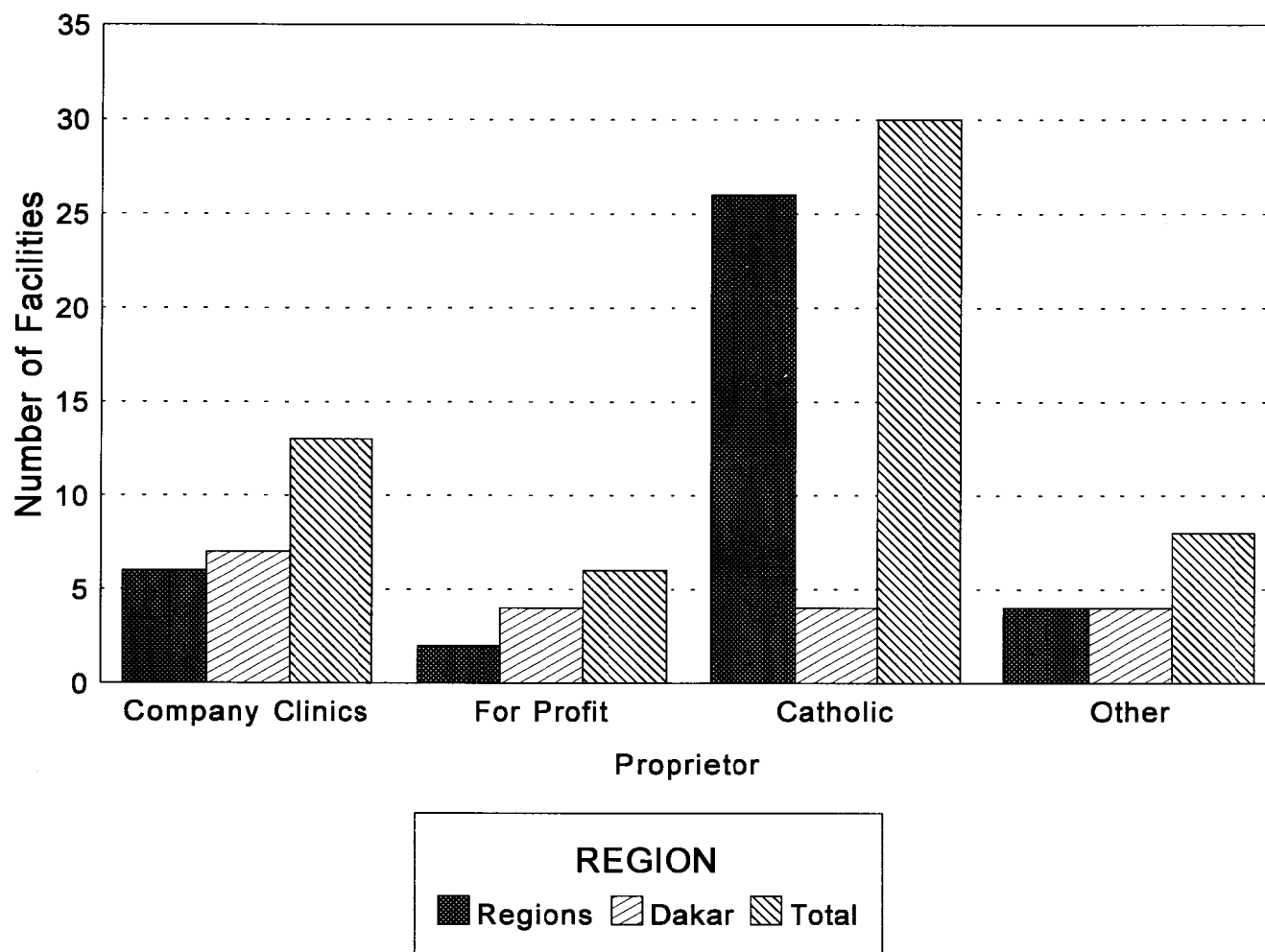
Other Non-Governmental Providers

There is very little information available about the types and number of other private providers operating in Senegal. Categories of providers identified were Red Cross, Muslim, and the Senegalese and French armies. Eight of these providers that were identified agreed to cooperate with the study team.

Exhibit 2-2 and ***Graph 2-1*** present the study sample, made up of a total of 57 non-governmental, facility-based providers. ***Exhibit 2-2*** also shows the estimated total universe of facilities in the country, and the sample as percentage of the universe.

Exhibit 2-3 presents the sample according to geographic location and annual output. As with the public sector study, five geographic groups were identified, including four groups of two regions each, and a fifth group containing the capital city. This grouping is commonly used in Senegal's public administration. Four output groups were defined based on annual utilization of curative ambulatory care. Each group is a quartile, and therefore accounts for one-fourth of the total sample.

Sample Size by Proprietor



Graph 2-1 Sample Size by Proprietor

EXHIBIT 2-2 STUDY SAMPLE AND NATIONAL UNIVERSE OF NON-GOVERNMENTAL HEALTH FACILITIES			
Facility Ownership	Sample Size	Universe	Sample as % of Universe
Catholic Health Posts	30	72	42
Company Clinics	13	30	43
Private For-Profit	6	15	40
Other (Red Cross, Muslim, Army)	8	16	50
Total	57	133	43

EXHIBIT 2-3 SAMPLE SIZE AND DISTRIBUTION					
UTILIZATION QUARTILE (curative ambulatory visits per month)					
Region	UT1 Under 3800	UT2 3800-10499	UT3 10500-19999	UT4 over 2000	TOTAL
Dakar	7	5	1	6	19
Fatick-Kaolack	2	5	6	0	13
St.Louis-Louga	1	1	1	1	4
Tambacounde-Kolda	2	0	1	1	4
Thies-Diourbel	3	4	6	7	20
Total	15	15	15	15	60
Type					
Clinic	4	1	1	0	6
Dispensary	9	14	13	13	49
Hospital	0	0	0	2	2
Total	13	15	14	15	57
Proprietor					
Company Clinic	4	4	2	3	13
Catholic Post	1	8	10	11	30
Private For-Profit	4	1	1	0	6
Other	4	2	1	1	8
Total	13	15	14	15	57
<i>Note:</i> From the section <i>Type</i> on, the statistics are based on 57 facilities. Three were dropped as inappropriate (medical, office, or itinerant preventive).					

3.0 RESULTS

This section is organized in the following sections:

- ▲ Utilization
- ▲ Costs
- ▲ Unit Cost Ratio Analysis
- ▲ Personnel Productivity
- ▲ Pricing
- ▲ Financing
- ▲ Quality of Care

Within each section, results about non-governmental providers are first presented and commented on, followed by a comparison with results from Bitran, Brewster, and Ba (1994) about governmental providers.

3.1 UTILIZATION

Non-governmental providers delivered primarily ambulatory care. Inpatient care—hospitalizations and deliveries—were produced in small quantities in for-profit and "other" clinics. Information on utilization of ambulatory and inpatient care is presented in *Graphs 3-1 and 3-2*, respectively.

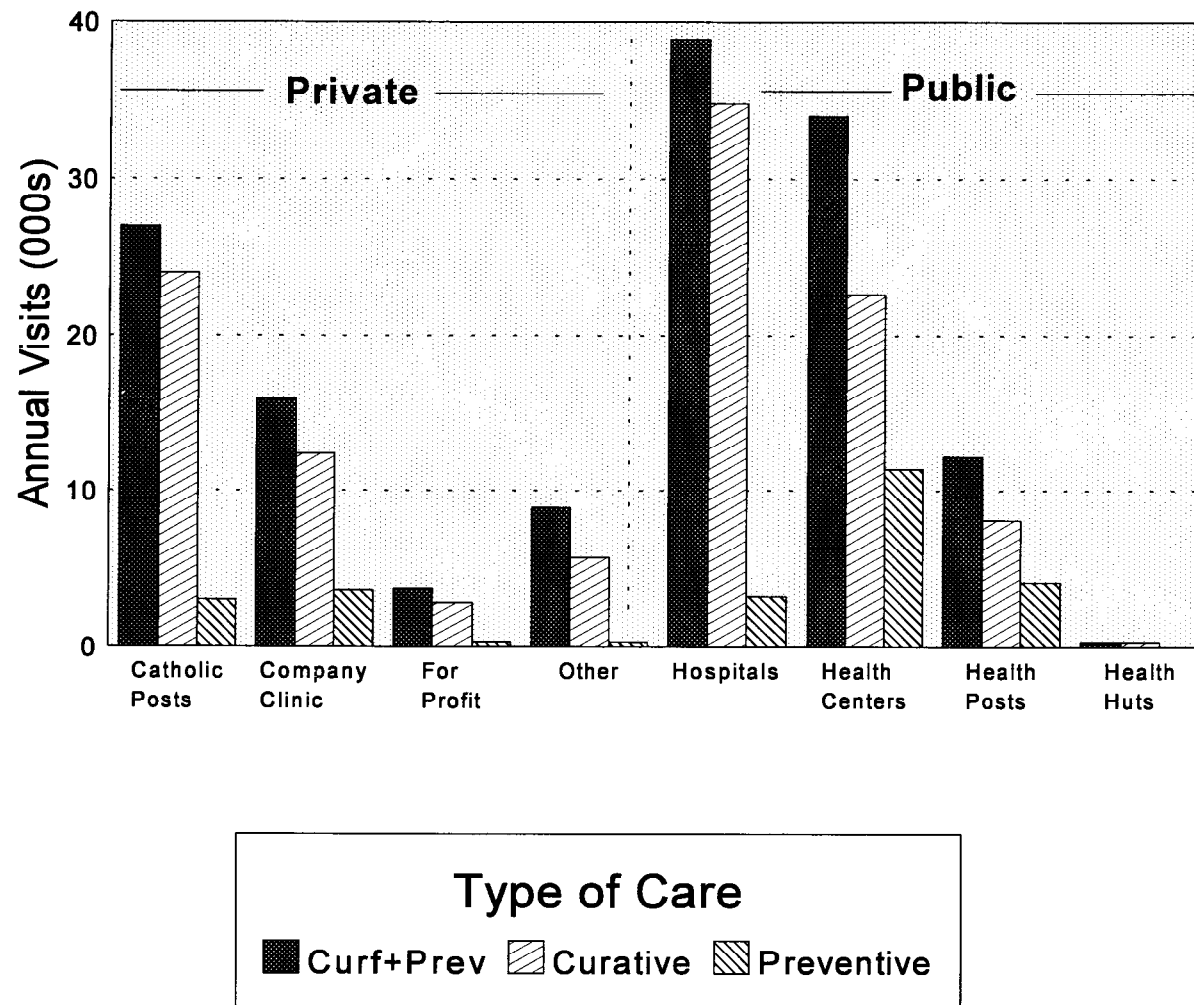
As shown in *Graph 3-3*, with the exception of for-profit providers that offered child vaccinations as their only preventive service, the three other providers supplied a rather complete set of preventive care.

On average, Catholic posts were slightly smaller than government health centers in terms of ambulatory output (*Graph 3-1*). Company clinics fell between government health centers and government health posts. "Other" clinics were somewhat smaller than government health posts, and for-profit clinics were about one-third the size of government health posts. With regard to inpatient output, both for-profit and "other" clinics were considerably smaller than government health centers (*Graph 3-2*). The composition of preventive care was similar between Catholic posts and government health centers and posts (*Graph 3-3*).

3.2 COSTS

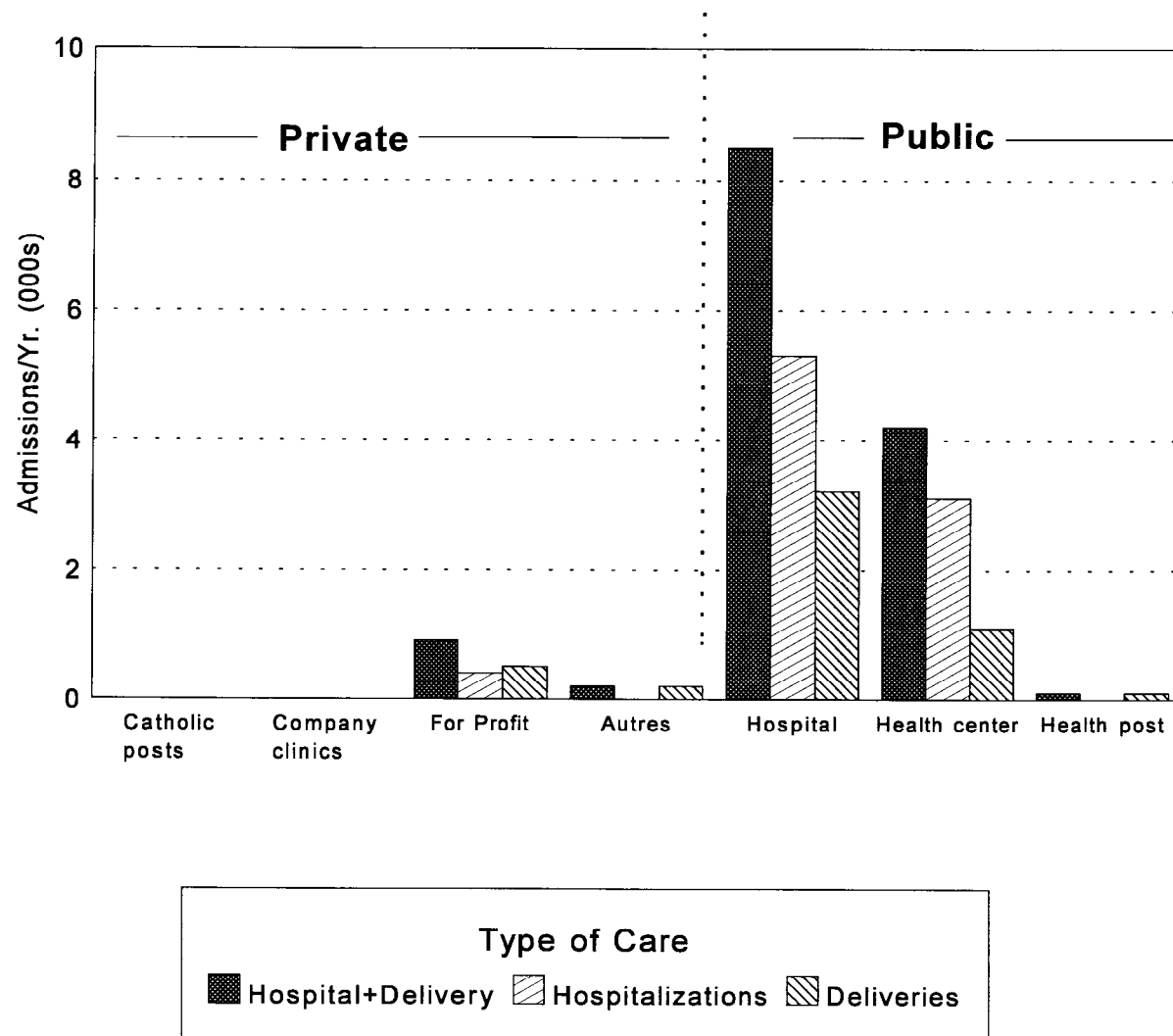
Exhibits 3-1—3-4 present facility cost data for each of the four categories of provider. The information has been organized regionally and by utilization quartile. Due to the small sample size, only two regional groups were retained: Dakar and all other regions. Utilization quartiles are as defined in *Section 2*.

Utilization of Ambulatory Care by Proprietor



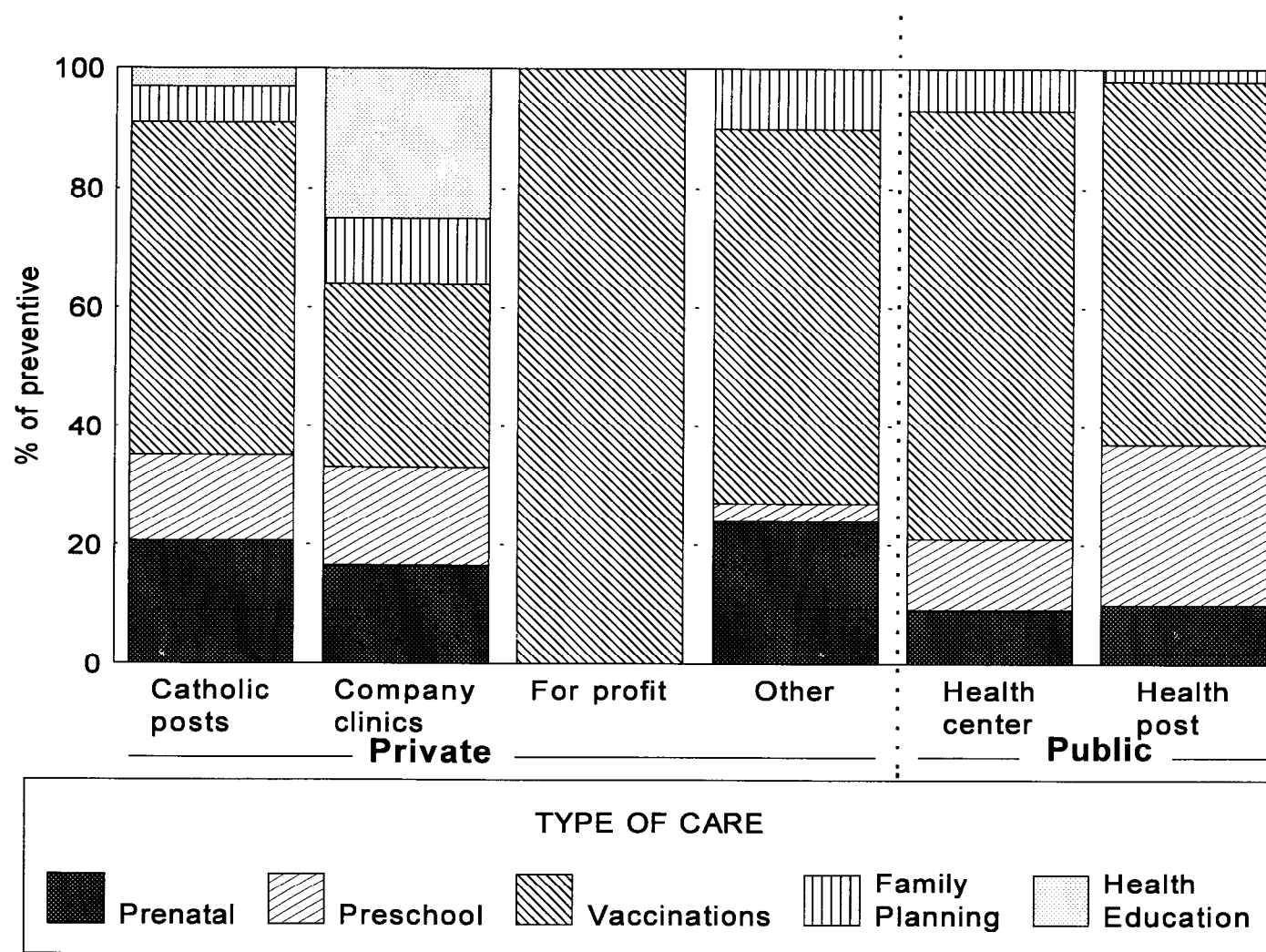
Graph 3-1 Utilization of Ambulatory Care by Proprietor

Utilization of Inpatient and Obstetric Care by Proprietor



Graph 3-2 Utilization of Inpatient and Obstetric Care by Proprietor

Composition of Preventive Services by Proprietor



Graph 3-3 Composition of Preventive Services by Proprietor

Each of the four tables presents *average total facility costs*, or costs for a representative facility from that group for FY91. Facility costs are broken down in three cost categories: personnel (or salaries), medicines (all pharmaceutical products), and other (supplies, utilities, fuel, and so on). As already noted, only recurrent or operating costs are shown; investments and capital depreciation are not included.

Like utilization, annual facility costs varied considerably in the sample. Lowest annual costs were observed among "other" providers in the regions, with 2.2 million FCFA (\$8,100); highest costs occurred among private clinics in Dakar with 84.9 million FCFA (\$314,400). Total facility cost by proprietor type is presented in *Graph 3-4*. On average, for-profit facilities have the highest costs, spending 84.9 million FCFA in FY91. They are followed closely by company clinics, with 69.9 million FCFA annually. "Other" providers and Catholic posts are on average similar in terms of their annual costs, with 8.6 million FCFA and 7.7 million FCFA, respectively.

Graph 3-4 also permits a comparison of total cost between private and public providers. Compared with public facilities, for-profit and company clinics are significantly more expensive. Catholic posts and "other" clinics spend annually about twice as much as health posts and about one-sixth as much as a typical health center.

Cost information is hard to interpret unless it is analyzed in relation to medical output. An analysis of unit cost is presented in *Section 3.3* to gain greater insight into cost differences among providers.

EXHIBIT 3-1 CATHOLIC HEALTH POSTS. AVERAGE FACILITY COSTS			
Cost Category	Region		
	Dakar	Regions	Total
Sample size	4	25	29
Costs (000, 000s FCFA)			
Personnel	7.2	2.2	2.9
Medicines	6.6	1.4	2.2
Other	9.2	1.6	2.7
Total	23.0	5.3	7.7
Percent			
Personnel	31	42	38
Medicines	29	27	28
Other	40	31	35
Total	100	100	100

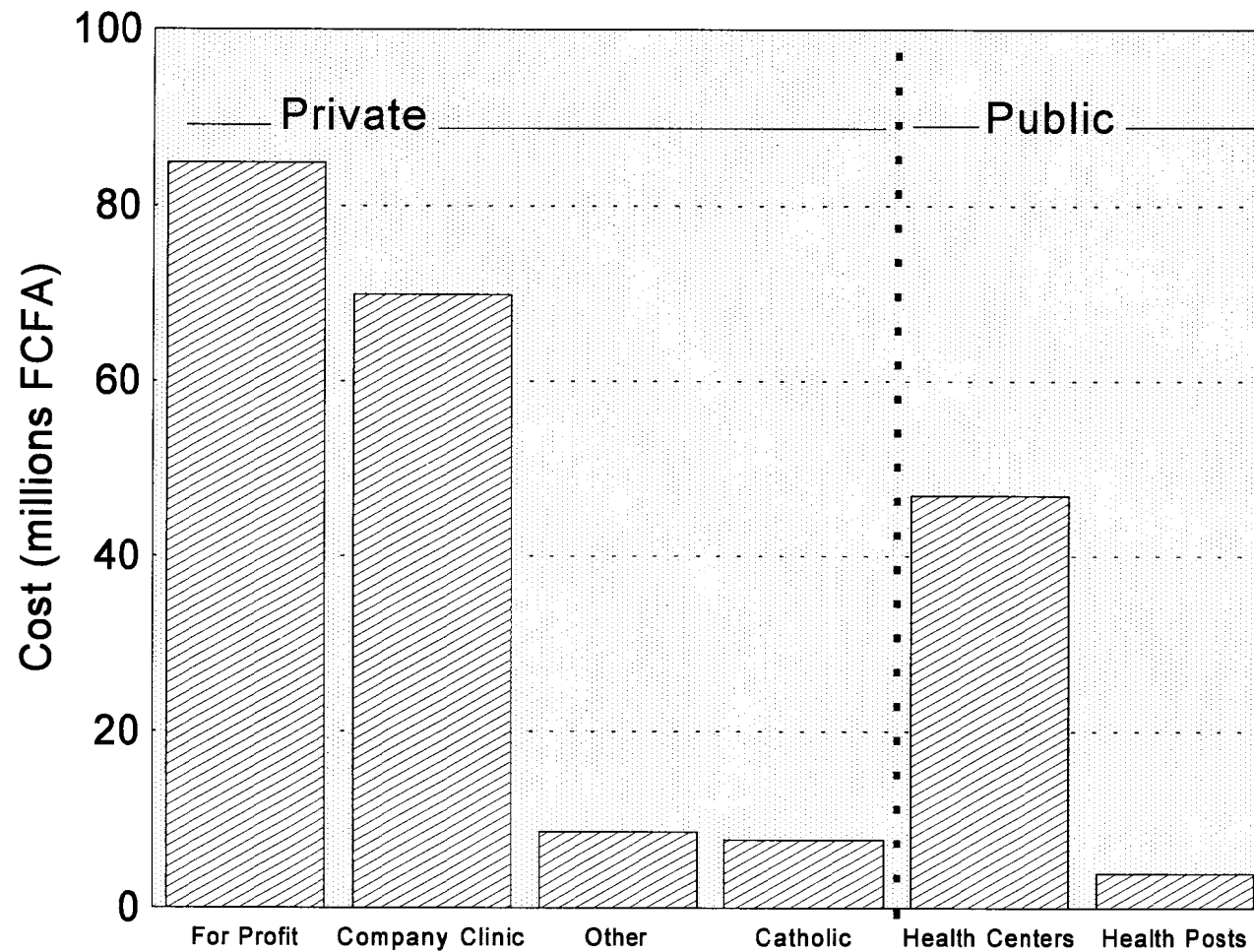
Utilization Quartile					
Sample Size	UT 1	UT 2	UT 3	UT 4	TOTAL
	1	8	10	10	29
Costs (000s, 000 FCFA)					
Personnel		1.7	1.8	11.2	2.9
Medicines	0.2	1.1	1.5	8.2	2.2
Others	0.8	1.5	2.0	10.7	2.7
Total	1.0	4.3	5.3	30.5	7.7

An important indicator of facility operations is the facility's cost structure. Other studies in the region have found that well-functioning ambulatory care providers exhibit a balance between personnel and drugs costs. The cost structure of facilities is shown in *Exhibits 3-1—3-4* and is depicted in *Graph 3-5*.

Catholic posts and company clinics exhibit similar cost structures, with an approximately even split among the three cost categories. This phenomenon occurs in Dakar and in the regions (not shown in the figure). For-profit providers spent a surprisingly low 12 percent of their recurrent budgets on medicine. "Other" providers also constitute an extreme case, although in a contrary way: their personnel costs dominate total costs while drugs and other costs combined account for a mere 12 percent of the total. The above information suggests that, except for "other" providers, the remaining categories may not be facing shortages of drugs, or at least their personnel is in line with their drug availability. This speaks favorably of these three kinds of non-governmental providers.

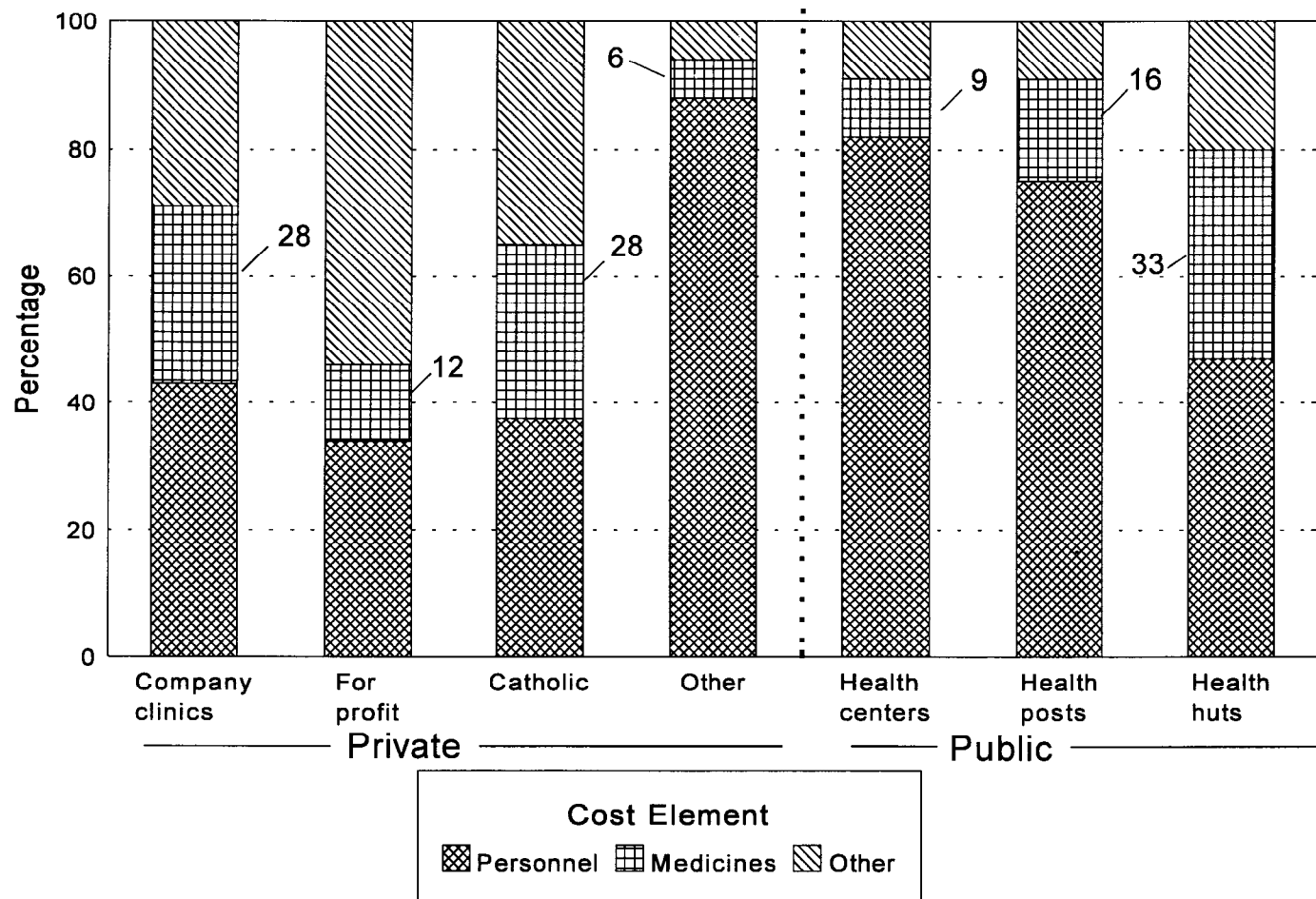
Government health centers and posts were facing severe drug shortages according to Bitran, Brewster and Ba (1994). *Graph 3-5* depicts their cost structure as well. Only 9 percent of health center recurrent costs were drugs; the equivalent figure for health posts was 16 percent. These percentages are considerably smaller than those found for Catholic posts and company clinics. Private for-profit clinics fared better than health centers in this respect, but worse than health posts. In sum, relative to some private providers—Catholic posts and company clinics—government health centers and posts appeared have an under-supply of drugs. The minute government health huts, in contrast, were as well endowed as those two types of private providers.

Total Facility Cost, Private and Public Providers



Graph 3-4 Total Facility Cost, Private and Public Providers

Private and Public Cost Structure



Graph 3-5 Private and Public Cost Structure

EXHIBIT 3-2 COMPANY CLINICS. AVERAGE FACILITY COSTS BY REGION AND UTILIZATION QUARTILE			
Cost Category	Region		
	Dakar	Regions	Total
Sample size	7	6	13
COSTS (000, 000s FCFA)			
Personnel	40.6	17.7	30.0
Medicines	22.1	16.2	19.4
Other	20.0	20.9	20.4
Total	82.8	54.8	69.9
PERCENT			
Personnel	49	32	43
Medicines	27	30	28
Other	24	38	29
Total	100	100	100

UTILIZATION QUARTILE					
	UT 1	UT 2	UT 3	UT 4	TOTAL
Sample size	4	4	2	3	13
COSTS (000, 000s FCFA)					
Personnel	14.9	29.4	104.2	104.4	30.0
Medicines	12.5	26.2	31.1	56.5	19.4
Others	18.8	25.8	21.3	59.6	20.4
Total	46.2	81.5	156.6	220.6	69.9

EXHIBIT 3-3 PRIVATE FOR-PROFIT CLINICS. AVERAGE FACILITY COSTS			
Cost Category	Region		
	Dakar	Regions	Total
Sample size	4	0	4
COSTS (000, 000s FCFA)			
Personnel	28.9	n.a.	28.9
Medicines	10.4	n.a.	10.4
Other	45.5	n.a.	45.5
Total	84.9	n.a.	84.9
PERCENT			
Personnel	34	n.a.	34
Medicines	12	n.a.	12
Other	54	n.a.	54
Total	100	n.a.	100

UTILIZATION QUARTILE					
	UT 1	UT 2	UT 3	UT 4	TOTAL
Sample Size	3	1			4
COSTS (000, 000s FCFA)					
Personnel	36.0	7.7	n.a.	n.a.	28.9
Medicines	13.0	2.7	n.a.	n.a.	10.4
Other	55.4	16.0	n.a.	n.a.	45.5
Total	104.4	26.3	n.a.	n.a.	84.9

EXHIBIT 3-4 OTHER CLINICS. AVERAGE FACILITY COSTS			
Cost Category	Region		
	Dakar	Regions	Total
Sample size	2	2	4
COSTS (000, 000s FCFA)			
Personnel	13.9	1.3	7.6
Medicines	0.2	0.8	0.5
Other	0.9	0.1	0.5
Total	15.0	2.2	8.6
PERCENT			
Personnel	93	59	88
Medicines	1	35	6
Other	6	6	6
Total	100	100	100

UTILIZATION QUARTILE					
	UT 1	UT 2	UT 3	UT 4	TOTAL
Sample size	3	1	n.a.	n.a.	4
COSTS (000, 000s FCFA)					
Personnel	14.6	1.8	n.a.	n.a.	7.6
Medicines	0.7	1.1	n.a.	n.a.	0.5
Other	1.1	0.1	n.a.	n.a.	0.5
Total	16.4	3.0	n.a.	n.a.	8.6

3.3 UNIT COST RATIO ANALYSIS

Cost information is hard to interpret unless it is analyzed in relation to medical output. Thus, to compare costs among providers, in *Exhibit 3-5* we computed average cost per unit of output. With the exception of private for-profit clinics in Dakar and "other" clinics, all other provider groups produced exclusively ambulatory care, i.e., curative and preventive visits (shaded columns of *Exhibit 3-5*). The sum of curative and preventive visits is total output for those providers. Average cost was thus computed by dividing total facility cost by total output. The result of this exercise is shown in rows (7) and (8) of the table, in FCFA and dollars, respectively.

Wide variability in average cost was observed among providers. Among those that produced ambulatory care only, Catholic posts exhibited by far the lowest unit cost, spending about one dollar per outpatient visit. Company clinics, in contrast, were between 10 and 20 times more expensive per unit of

output, a major difference. Reasons behind these contrasts are explored below, particularly in the section on quality of care.

To explore average costs of the other providers, i.e., those producing inpatient care and deliveries, we used a different method. We inputed a cost for outpatient care by multiplying the average cost of an outpatient visit for Catholic posts and company clinics [row (9) of *Exhibit 3-5*] times outpatient output. We then derived the total cost of inpatient care (hospitalizations + deliveries) by subtracting the cost of outpatient care from total cost. Finally we divided the derived cost of inpatient care by outpatient output (hospitalizations + deliveries).

EXHIBIT 3-5 OUTPUT, TOTAL COST, AND AVERAGE COST								
Output (in thousands) and Cost	Provider Category*							
	Catholic Health Posts		Company Clinics		Private For-Profit		Other	
	Dak.	Reg.	Dak.	Reg.	Dak.	Reg.	Dak.	Reg.
(1) Curative Visits	69.4	16.7	9.9	15.4	2.8	2.4	3.3	7.6
(2) Preventive Visits	5.8	2.9	4.1	2.7	0.1	0.8	2.0	3.8
(3) Curative + Preventive Visits	75.2	19.6	14.0	18.1	2.9	3.2	5.3	11.4
(4) Deliveries	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.2
(5) Hospitalizations	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
(6) Total Cost (million FCFA)	23.0	5.3	82.8	54.8	84.8	n.a.	15.0	2.2
(7) Average Cost Per Visit (FCFA)	306	270	5,914	3,028		n.a.		
(8) Average Cost Per Visit (\$)	1.1	1.0	21.9	11.2		n.a.		
(9) Average Cost Per Visit (\$)	4.8							
(10) Estimated Total Cost of Ambulatory Care (million FCFA)					3.8	4.2	6.9	14.9
(11) Estimated Total Cost of Inpatient and Obstetric Care (million FCFA)					81.0	n.a.	8.1	<0
(12) Estimated Average Cost per Inpatient (Hosp. + Deliv.) (\$)					300.0	n.a.	298.9	<0
* Shaded columns correspond to provider categories that produce ambulatory care only. Calculations: (3) = (1) + (2) (7) = 1000 x (6) / (3) (8) = (7) / 270 (1 \$ = 270 FCFA) (9) = 1000 x (6) / (3) / 270 for first four provider groups combined (10) = (3) x (9) x 270 / 1000 (11) = (6) - (10) (12) = 1000 x (11) / [(4) + (5)]/270								

The results of this calculation are mixed. In the case of for-profit providers, inpatient care appears to account for 81 million FCFA [row (11)], or the bulk (96 percent) of their total costs. According to this calculation, the average cost of an admission (hospitalization or delivery) is \$300 [row (12)], or 81,000 FCFA. For "other" providers from Dakar, inpatient care seems to account for 8.1 million FCFA, or 54 percent of their total costs. Accordingly, the average cost of an admission is \$299, or also about 81,000 FCFA. The total cost of regional "other" providers may be underestimated, and therefore this calculation yields impossible (negative cost) results.

To explore the relative cost of private and public providers, average cost information from the preceding exhibit is compared in *Exhibit 3-6* with that obtained previously through the public sector study (Bitran, Brewster, and Ba 1994).

EXHIBIT 3-6 AVERAGE COST OF CARE. COMPARISON BETWEEN PRIVATE AND PUBLIC PROVIDERS							
Estimated Average Cost	Private				Public		
	Catholic Posts	Company Clinics	For-Profit Clinics	Other Clinics	Health Centers	Health Posts	Health Huts
Curative + Preventive (FCFA) *	298	4,287	1,026*	1,026*	304	304	296
Curative + Preventive (\$)	1.10	15.88	3.80*	3.80*	1.13	1.13	1.10
Deliveries + Hospitalizations (FCFA)			81,000	80,703	12,472		
Deliveries + Hospitalizations (\$)			300.00	298.90	46.19		
* Imputed values (see <i>Exhibit 3-5</i>)							

Catholic posts exhibit the same average cost for ambulatory care as government facilities, or just over 1 dollar per visit. Company clinics are almost 15 times more expensive than either public facilities or Catholic posts. For inpatient care, for-profit clinics appear to be between 6 and 7 times more expensive per admission than government health centers.

An examination of the bottom section of *Exhibits 3-1 and 3-2* reveals that, as should be expected, total facility cost increases progressively with output for Catholic posts and company clinics. For example, Catholic posts in the first utilization quartile have the lowest total cost (1.0 million FCFA); this cost increases with output to reach 30.5 million FCFA for facilities in the highest quartile. A similar phenomenon is observed among company clinics.

An important economic question explored next is whether average cost increases or decreases with output. If it decreases, economists say that there are *economies of scale*, that is, there are economic advantages to expanding output because each unit produced costs less on average. If the opposite is true, there are economic advantages to reducing output.

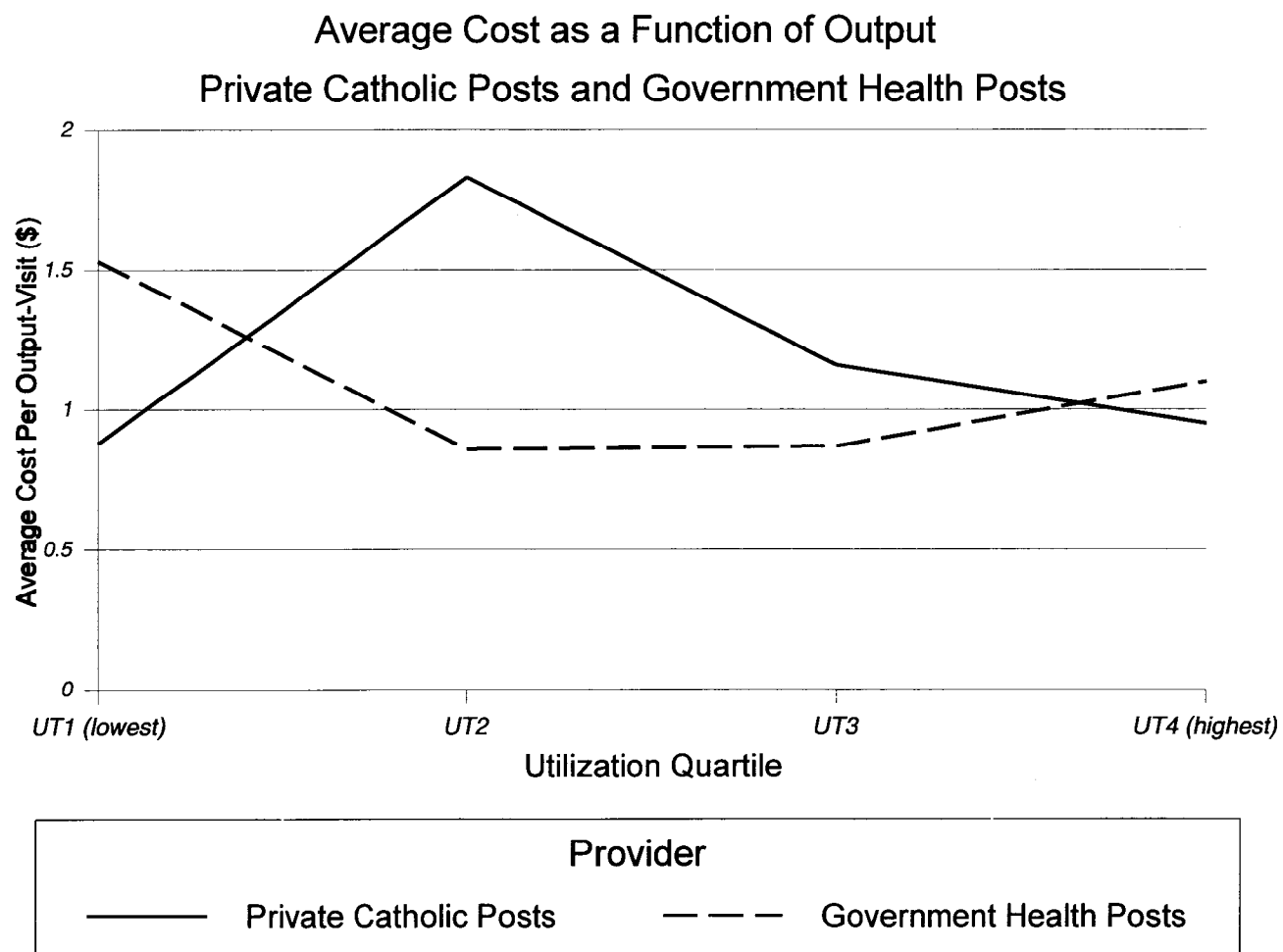
Average cost is derived in *Exhibit 3-7* for Catholic posts and company clinics, i.e., facilities that produce only ambulatory care. The same information is displayed in *Graphs 3-6 and 3-7* for both types of provider. (*Graph 3-6* also depicts average cost of outpatient care for government health posts.) With the exception of the first quartile for Catholic posts (the sample size for that subgroup is only one facility), average costs in Catholic health posts and company clinics decrease with output. This suggests that these providers may have large fixed costs; expanding output would result in economies of scale, by spreading those fixed costs among a larger number of visits and thus reducing average cost.

EXHIBIT 3-7 AVERAGE COST AND OUTPUT. CATHOLIC POSTS AND COMPANY CLINICS					
	Utilization Quartile				
	UT1 (Lowest)	UT2	UT3	UT4 (Highest)	Total
CATHOLIC HEALTH POSTS					
Curative + Preventive Visits (000s)	4.2	8.7	16.9	118.4	27.0
Total Cost (million FCFA)	1.0	4.3	5.3	30.5	7.7
Average Cost (FCFA)	238	494	314	258	285
Average Cost (\$)	0.88	1.83	1.16	0.95	1.06
COMPANY CLINICS					
Curative + Preventive Visits (000s)	3.9	9.7	31.8	89.3	16.0
Total Cost (million FCFA)	46.2	81.5	156.6	220.6	69.9
Average Cost (FCFA)	11,846	8,402	4,925	2,470	4,369
Average Cost (\$)	43.9	31.1	18.2	9.1	16.2

3.4 PERSONNEL PRODUCTIVITY

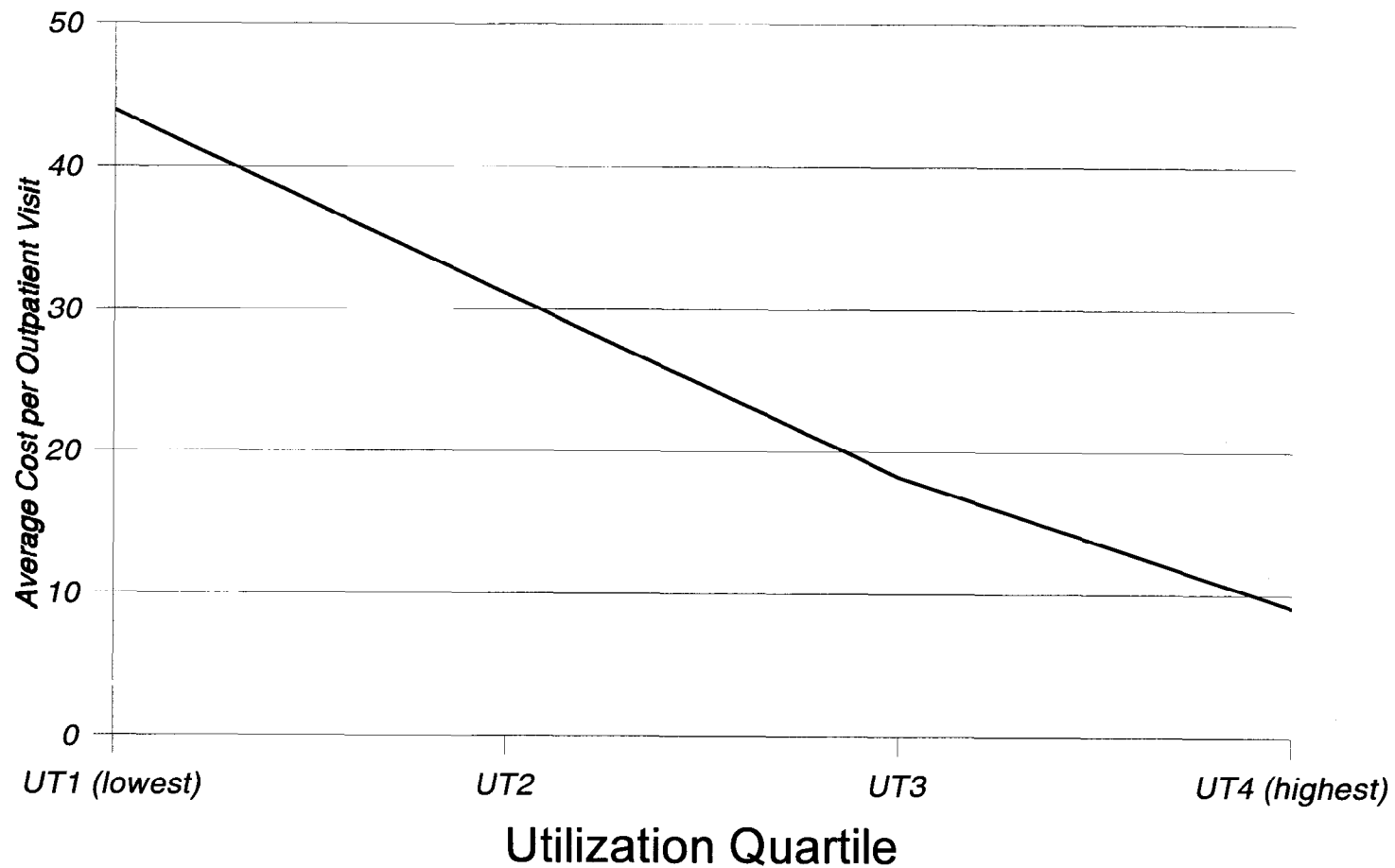
Personnel productivity is an important measure of efficiency in production, since it establishes a relationship between health care output and medical labor input. Other things being equal (including quality of care), the higher the ratio of output to input, the greater the efficiency of the production process.

Productivity is a direct measure of technical efficiency of labor (see definition of technical and economic efficiency in *Section 2*). Low personnel productivity means low technical efficiency: presumably, fewer staff could be hired thereby increasing individual productivity. This would also reduce labor costs and thus improve economic efficiency.



Graph 3-6 Average Costs as a Function of Output: Private Catholic Posts and Government Health Posts

Average Cost as a Function of Output Company Clinics



Graph 3-7 Average Cost as a Function of Output: Company Clinics

In the public sector, unfortunately, labor productivity is not always under the control of workers and managers. Political and technical considerations, as well as exogenous factors, may result in low productivity and, thus, low levels of technical and economic efficiency. For example, low demand for a certain service may imply low productivity. To improve productivity, staff would have to be laid off, their hours reduced, or they would have to be shifted to activities for which demand is greater. While in many instances this may be advisable, in others it may not be possible or politically acceptable. For example, for equity reasons, a political decision may be made whereby specialty doctors are sent to a region with naturally low demand (e.g., ophthalmologists, psychiatrists). Due to labor law constraints, these specialists can be hired only on a full time basis and not by the hour. Their output per unit of time is therefore low.

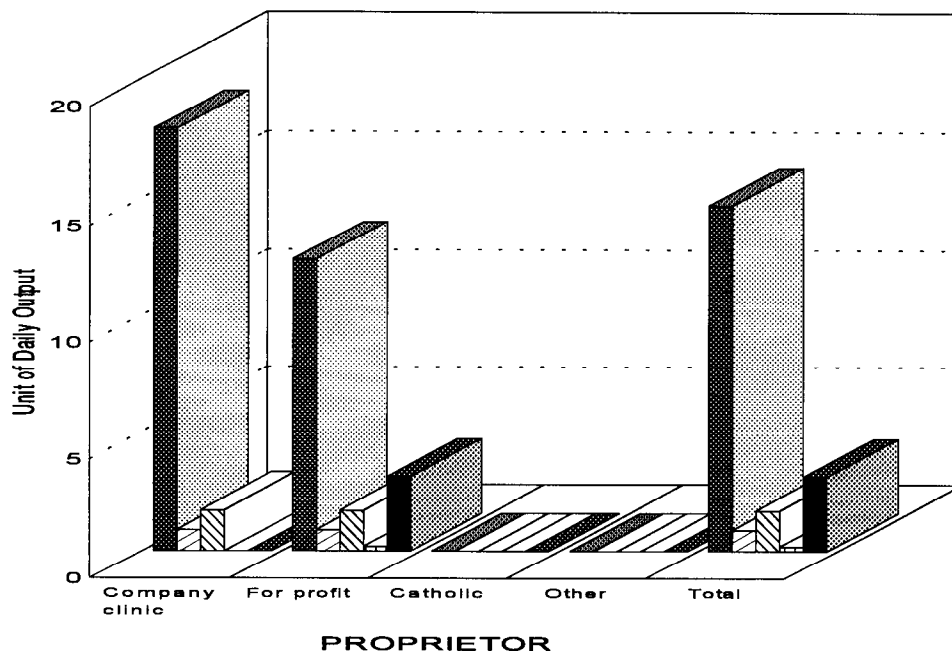
In the private sector, efficient behavior may be present and driven by certain types of incentives that are generally absent in the public sector. These incentives include the desire to maximize profit, among profit maximizers, or the need to break even, among nonprofit providers. Profit maximizers may seek to reduce costs by improving staff productivity—a measure that may improve efficiency if it does not come at the expense of quality. They may also attempt to increase revenue either by increasing prices, if that is feasible, or by improving the quality of the service—a measure that also enhances the efficiency of the health system. Non-profit providers may also have a drive to improve personnel productivity to keep costs down, particularly when external subsidies are unavailable or are available only in modest quantities.

But the above is only theory. Whether or not private providers exhibit higher staff productivity is an empirical question. Below we present productivity information for three categories of health care professionals found in the non-governmental sector: doctors, midwives, and nurses. Next, we compare those results with equivalent information obtained from the public sector.

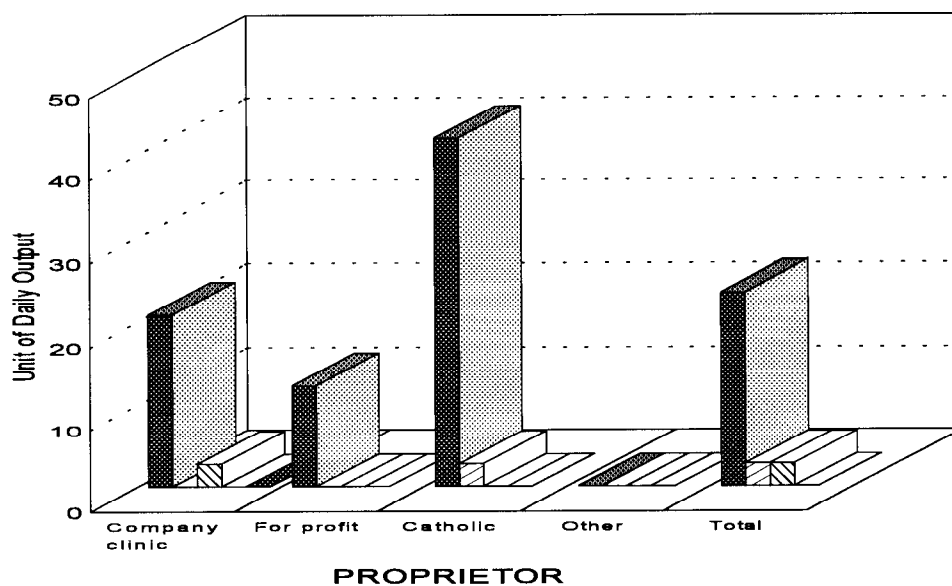
For every category of medical personnel, productivity was obtained by computing a ratio between the number of units of health care output and the number of hours of medical labor input devoted to the production of that output. Information on output volume by personnel category was collected through the facility questionnaire with the aid of a matrix. The rows of the matrix were the categories of output; the columns were the categories of medical staff. The cells contained annual output data. A separate section of the questionnaire gathered information about the facility's staffing. In each facility, each category of personnel produced a well-defined set of services. Since information about total output by personnel category and number of staff by category was collected, it was possible to compute staff productivity ratios.

Graphs 3.4.1-3.4.3 depict average daily productivity for doctors, midwives, and nurses, and for all four types of non-governmental providers. Doctor productivity (**Graph 3-8**) was highest in regional Catholic posts, with over 40 curative care outpatient visits per day, and lowest among doctors working in regional for-profit facilities (about 10 daily visits). Among providers in Dakar, company clinics exhibited the highest doctor productivity. Doctors also produced other types of medical services, such as preventive care and hospitalizations. Output for such services, however, was generally low, with the exception of for-profit clinics in Dakar, where the average physician assisted three hospitalized patients daily.

Doctor Productivity in Dakar



Doctor Productivity in Regions



Graph 3-8 Doctor Productivity

Midwives produced an array of health services (*Graph 3-9*). In Dakar midwives mainly assisted hospitalized patients and delivered preventive care and family planning. For example, the average midwife in a company clinic delivered the following number of daily visits: 1 family planning, about 6 pre-school, and 2 prenatal. Midwives in for-profit facilities concentrated more on hospitalized patients while those in Catholic posts produced mainly prenatal care. For-profit facilities were the only type to produce midwife-assisted deliveries.

In the regions midwives were found only in company clinics. Their average daily output totaled about 11 ambulatory patients, of which 7 were curative, 2 preventive, and 2 family planning.

Nurses produced primarily curative care (*Graph 3-10*). The highest rate of output was observed among "other" providers in the regions, with about 30 curative visits per day; the lowest in regional company clinics with about 3 daily visits. In Dakar, nurse curative care output bordered on 20 patients daily.

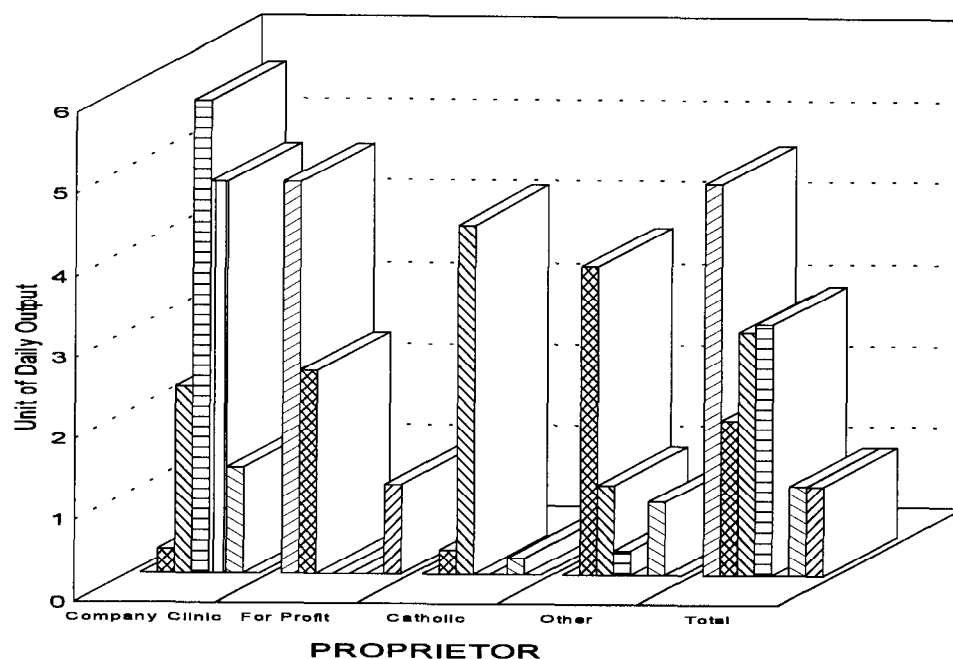
For comparison, public sector staff productivity is shown in *Graphs 3-11 and 3-12*. The highest productivity among health centers doctors was found in the Region of Tambacounde-Kolda where the average doctor saw 5 ambulatory patients and assisted four hospitalized patients per day. In Dakar, the average government doctor saw fewer than 2 ambulatory and 2 hospitalized patients per day. These figures are in stark contrast with productivity data from the private sector. Catholic post doctors saw as many as 40 patients per day in the regions while company clinic physicians assisted about 20 patients daily. In both cases, these private doctors also provided care to hospitalized patients and delivered preventive care.

Nurse productivity in government health centers was also highest in Tambacounde-Kolda where the average nurse saw 15 outpatients per day. This was similar to the productivity achieved by private-sector nurses in regional Catholic posts, but was below the productivity of private-sector nurses in Dakar. Only company clinics exhibit lower nurse productivity than the best of government health centers. Average nurse productivity in government health centers in Dakar (2 outpatients per day) was one-tenth that found in the private sector. In the regions, government nurses produced 7 outpatients daily, or less than one-half the daily output of their private sector colleagues.

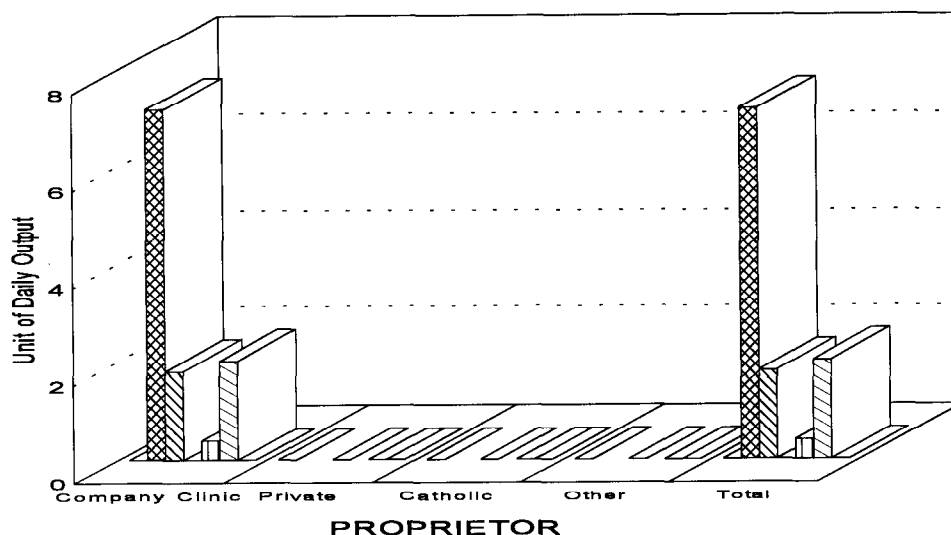
Midwife productivity in government health centers was also generally lower than in private sector facilities. In both private and public facilities, midwives provided a broad range of services that include curative and preventive care, deliveries, and family planning visits.

Government health posts exhibit higher nurse productivity than health centers, particularly in Dakar (35 ambulatory patients per day). However, in the regions nurses in government health posts produced fewer than 15 visits daily, or just below the productivity found in the private sector.

Midwife Productivity in Dakar



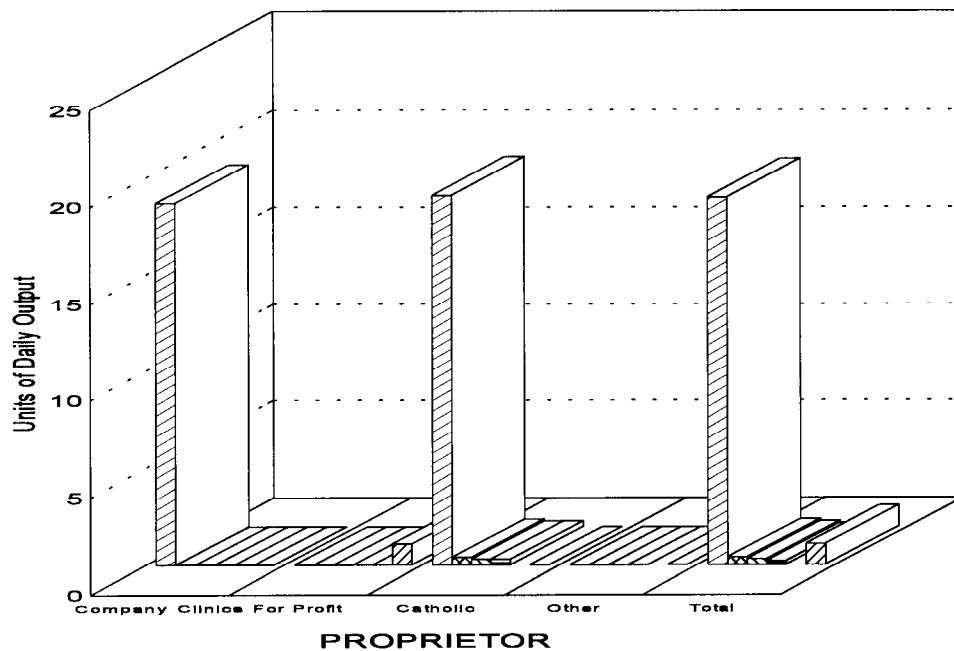
Midwife Productivity in Regions



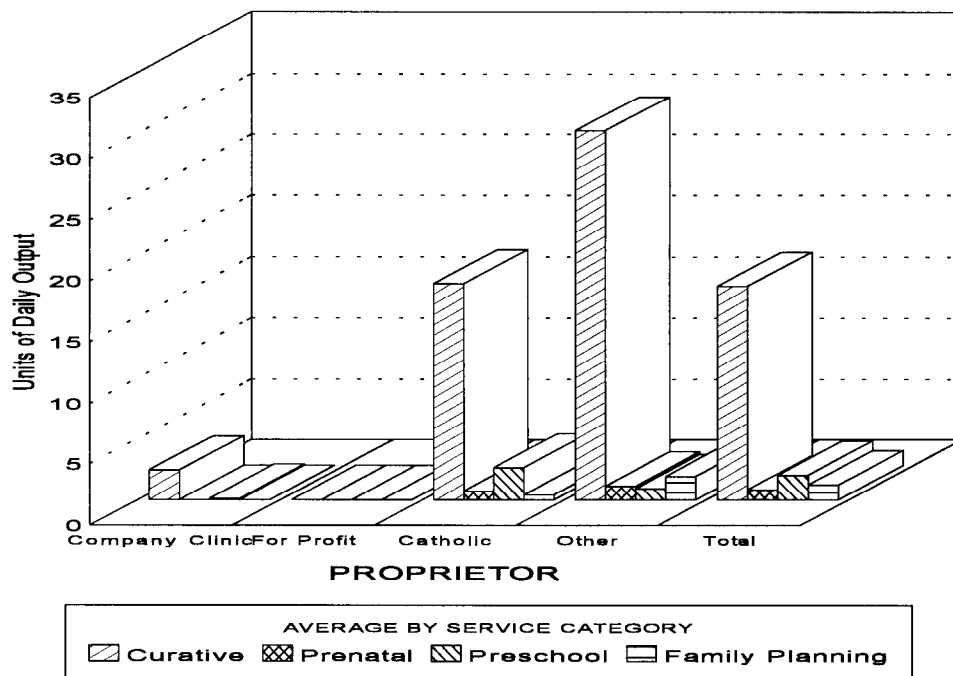
AVERAGE BY SERVICE CATEGORY						
	Hospitalization		Curative		Prenatal	
	Preschool		Preventive		Other	
	Delivery					

Graph 3-9 Midwife Productivity

Nurse Productivity in Dakar

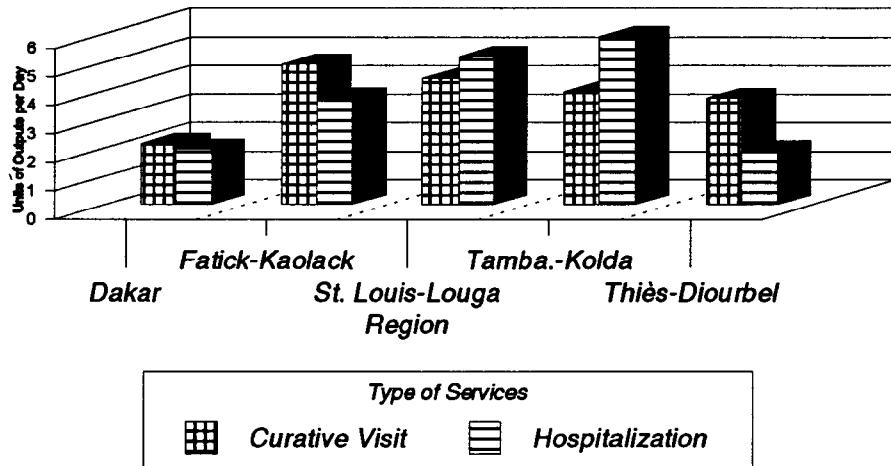


Nurse Productivity in Regions

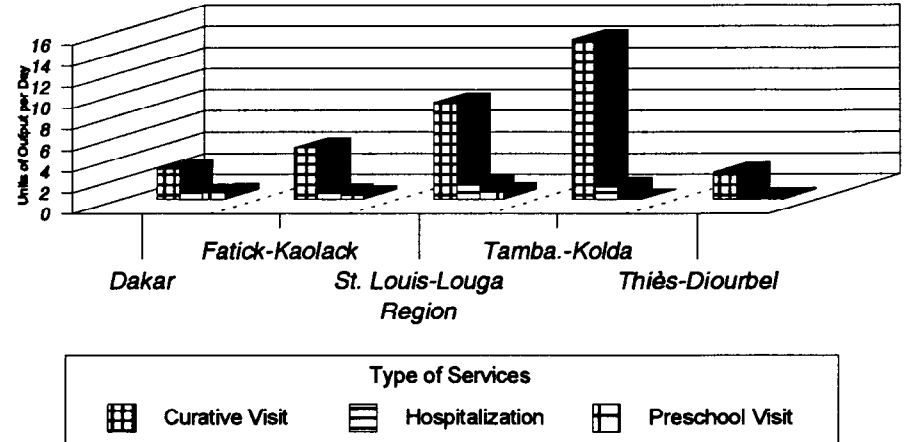


Graph 3-10 Nurse Productivity

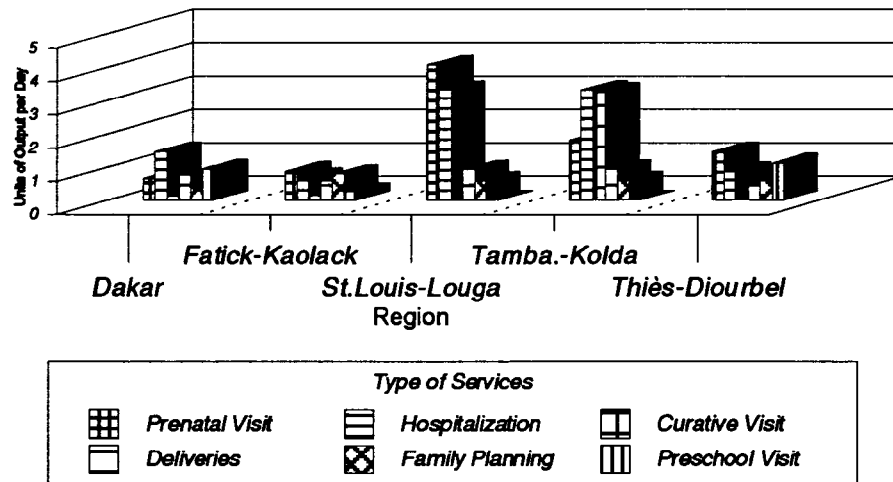
*Health Centers. Average Daily
Productivity of Doctors*



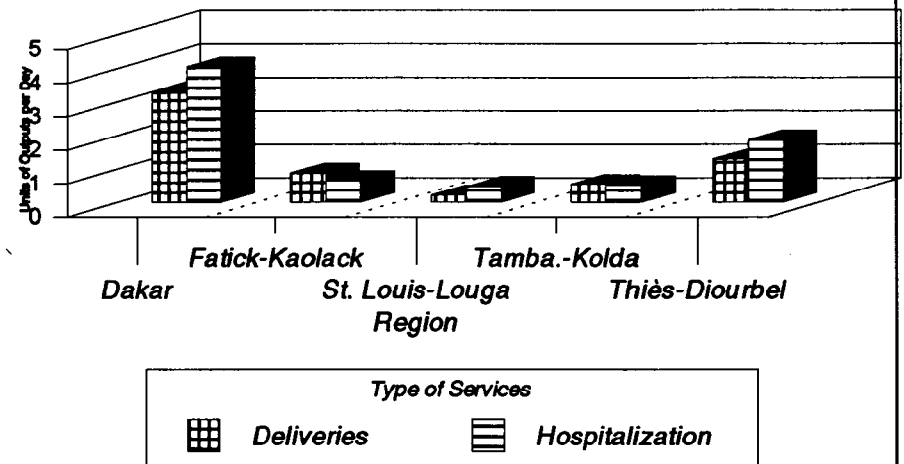
*Health Centers. Average Daily Productivity
of Nurse/Medical Technician*



*Health Centers. Average Daily
Productivity of Midwives*

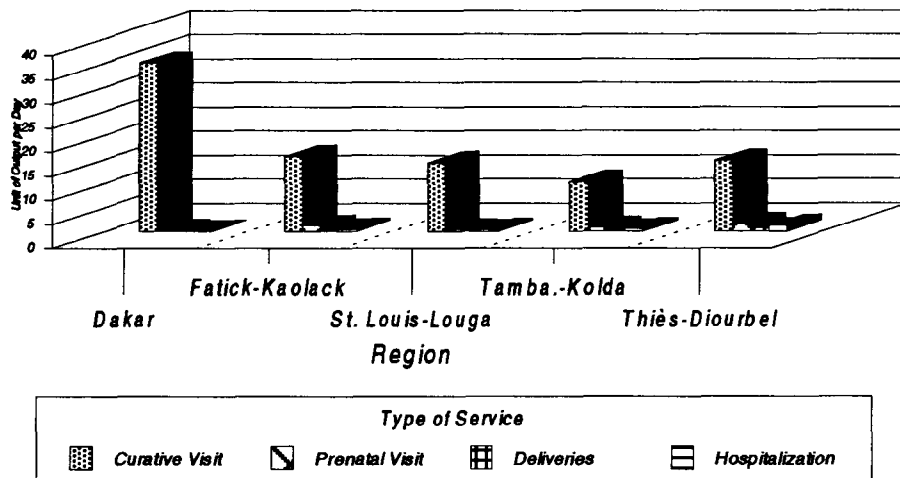


*Health Centers. Average Daily
Productivity of Birth Attendant*

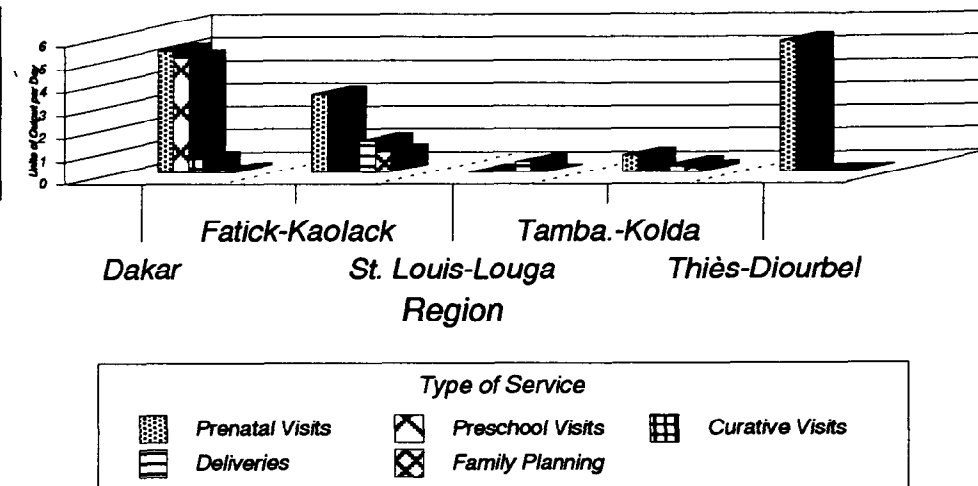


Graph 3-11 Personnel Productivity in Health Centers

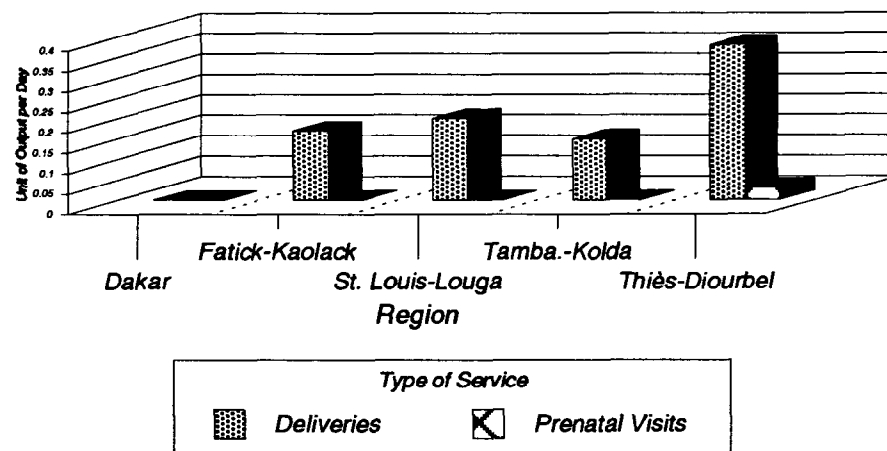
Health Posts. Average Daily Productivity of Nurse/Medical Technician/Dentist



Health Posts. Average Daily Productivity of Midwives



Health Posts. Average Daily Productivity of Matrons



Graph 3-12 Personnel Productivity in Health Posts

3.5 PRICING

Price information for all services and providers is presented in Appendix A, *Exhibits A-8-A-11*. The information from the tables is summarized graphically in *Graph 3-13*, with Dakar and regional facilities combined within each provider group. *Graph 3-13* also shows prices for government facilities from the public sector study. Prices varied significantly among non-governmental providers. For-profit clinics had the highest prices of all providers, and their prices exceeded that of others by up to a factor of 25. For example, a for-profit provider charged on average 8,000 FCFA (\$29.63) per curative ambulatory visit while a Catholic post charged only 308 FCFA (\$1.14). Company clinics' prices were the second highest for curative and obstetric care, and equal to about one-half that of for-profit facilities. Catholic posts and "other" providers had similar and, relative to the two other provider groups, modest prices: for curative and preventive care Catholic posts charged 271 FCFA (\$1.00) and 192 FCFA (\$0.71) per visit, respectively. For-profit clinics offered obstetric care and hospital care. Their prices were about 45,500 FCFA (\$168.52) for both deliveries and hospitalizations.

There were also differences in price levels between Dakar and the regions (not shown in the figure; see Appendix A), although these disparities were modest compared with the price differences among provider groups. Prices in Dakar were higher than in the regions for all providers except company clinics. For example, Catholic posts charged 207 FCFA (\$0.77) per preventive visit in Dakar and 181 FCFA (\$0.67) in the regions. In the case of for-profit providers, regional prices were only 60 percent of the prices in Dakar while for "other" clinics, regional prices were about 30 percent the prices in Dakar. Lower regional prices may reflect lower costs of production (cheaper medical labor) as well as lower purchasing power of the population.

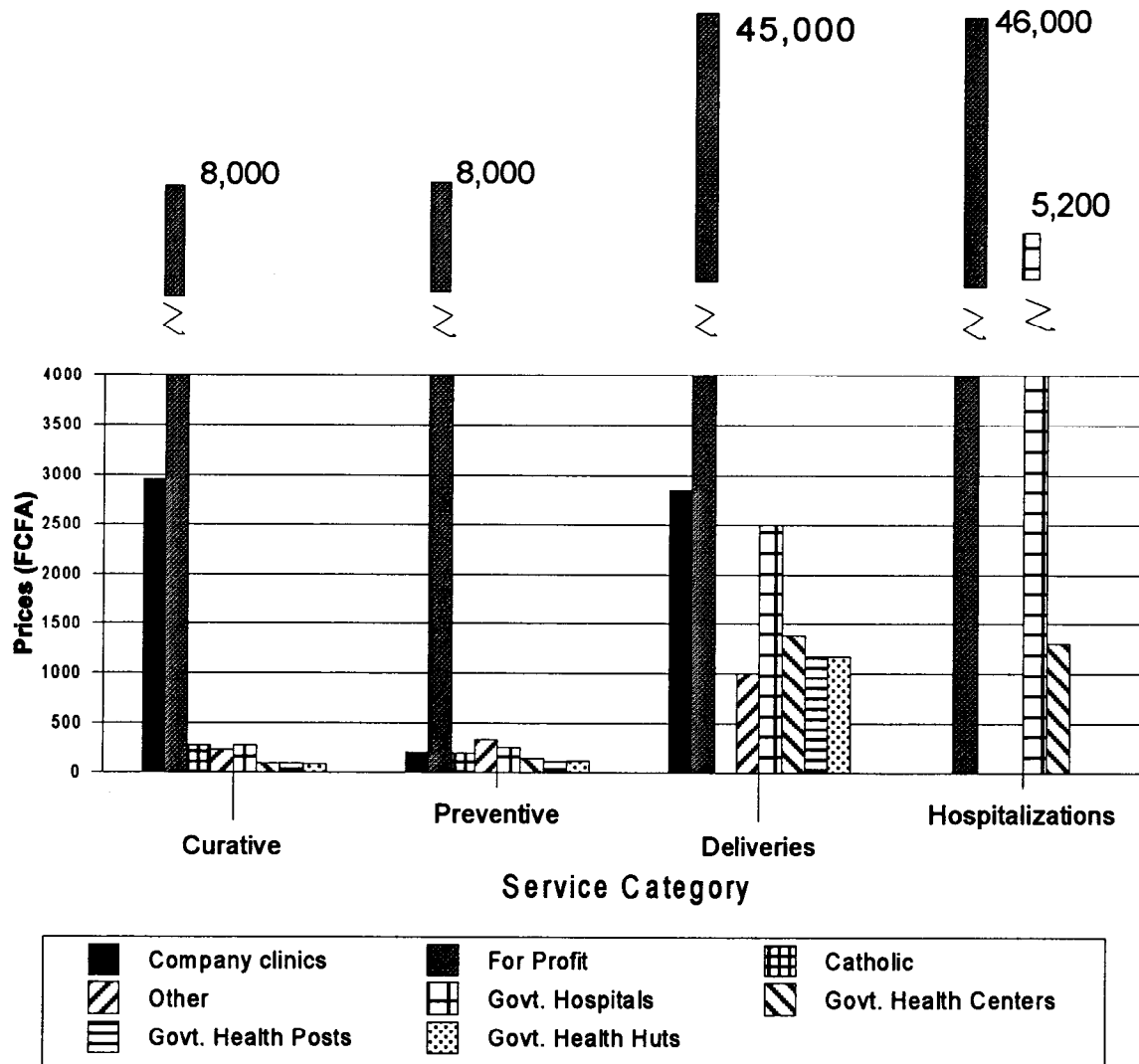
Private sector prices were generally higher than those in the public sector. For curative care, Catholic post prices were equal to government hospital prices and about twice as high as prices in government health centers, posts, and huts. For-profit clinic prices for inpatient care were almost 20 times as high as government hospitals' for deliveries and about 10 times higher for hospitalizations.

3.6 FINANCING

With the exception of Catholic posts, providers were reluctant to disclose revenue information. Rates of cost recovery, or of profitability, therefore were not obtained for them. It is likely that company clinics are largely subsidized by the firm, with only a small share of its revenue coming from paying patients. It is also probable that for-profit providers make a profit and receive no external subsidies and that "other" providers depended primarily, if not exclusively, on user payments as their revenue source.

Concerning Catholic health posts, cost recovery is almost exclusively the source of revenue, with 96 percent of their revenue coming from user fees (*Exhibit 3-8* and *Graph 3-14*). Thus Catholic facilities virtually break even and are self-financed as far as recurrent costs are concerned. No information was sought about the funding of investments. It is likely that, as in other countries in the region, capital outlays of Church-owned health services are financed with Church or other external subsidies.

Average Prices Private and Public Providers

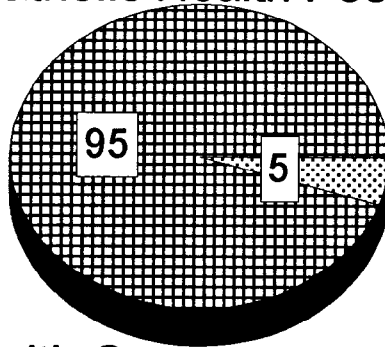


Graph 3-13 Average Prices Private and Public Providers

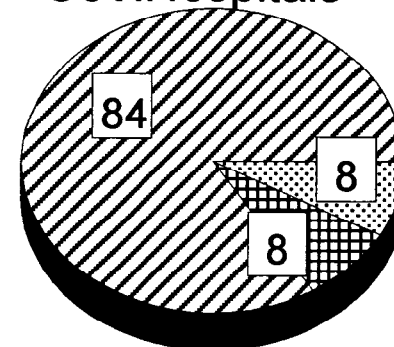
Funding Sources of Private and Public Providers

PERCENT

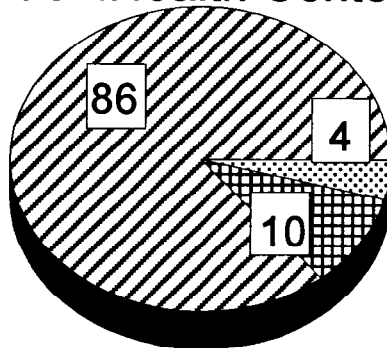
Catholic Health Posts



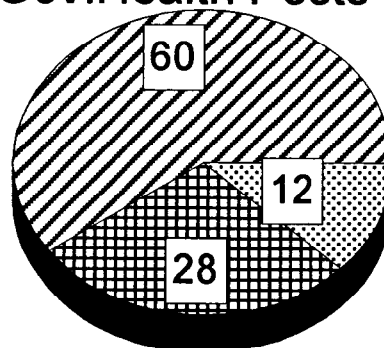
Gov. Hospitals



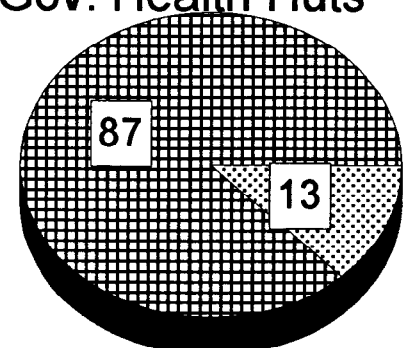
Gov. Health Centers



Gov. Health Posts



Gov. Health Huts



FUNDING SOURCE



Gov. Subsidy



User Fees



Other

Graph 3-14 Funding Sources of Private and Public Providers

EXHIBIT 3-8 CATHOLIC HEALTH POSTS. FINANCING BY BUDGET CATEGORY AND FUNDING SOURCE (N= 27)				
Budget Category	Funding Source			
	User Fees	Donation	Other	Total
COSTS (000s FCFA)				
Personnel	2,813	53	0	2,866
Medicines	2,038	28	52	2,117
Other	1,817	178	77	2,072
Total	6,668	259	128	7,055
PERCENT				
Personnel	42	21	0	41
Medicines	31	11	40	30
Other	27	69	60	29
Total	100	100	100	100
Total Funding(%)	95	4	2	100

Compared to government health facilities, private Catholic posts achieved the highest rate of cost recovery, or financial self-sufficiency. The three largest types of government providers depending critically on public budgets to finance their operations. Government health posts, which most resemble Catholic posts in terms of types and volume of services offered, recovered only 28 percent of their costs from user fees. That figure compares negatively with the 95 percent rate of cost recovery achieved by Catholic posts.

Differences in cost recovery capacity may be explained by many factors. Catholic posts have prices that exceed those of government facilities for ambulatory care. Also, Catholic posts may have a different free-care policy than government facilities which exempt some indigent patients and other user groups. However, information about exemption policies in Catholic posts was not obtained and therefore no conclusion can be reached in this respect. Further, in the public sector study, government facilities reported exempting from payment only a small fraction of patients (less than 5 percent).

Another important factor that may explain the relative financial success of Catholic posts is their higher personnel productivity combined with their greater availability of drugs. Indeed, although Catholic posts have similar average costs as government ambulatory facilities, the labor component of average cost is much smaller owing to higher staff productivity. The drugs component of average cost is much higher due to greater drug availability. Thus, at the same cost of production, Catholic posts sell a product that is more drug-intensive. This most likely makes the services of Catholic posts more attractive to a population frustrated by the lack of pharmaceutical products in the public health sector. Because Catholic posts offer a more drug-intensive and thus more popular product, they can afford to charge a higher price than public facilities. These factors combine to create a significantly superior financial performance in Catholic posts.

3.7 QUALITY OF CARE

To study quality of care, the research team sought the following information (*see Exhibit 2-2* for further detail):

- ▲ Availability of drugs and other medical supplies at the time of the survey and throughout the reference study period (FY91)
- ▲ Medical staff compliance with clinical standards of treatment
- ▲ Patient quality perceptions
- ▲ Staff quality perceptions

This section presents the main findings arising from an analysis of the above information.

Availability of Drugs and Medical Supplies

The survey team inquired about the availability of selected essential pharmaceutical during the reference year as well as at the time of the survey. Providers were asked to report any stockouts of these products during the reference period and the duration of these ruptures. The drugs selected were:

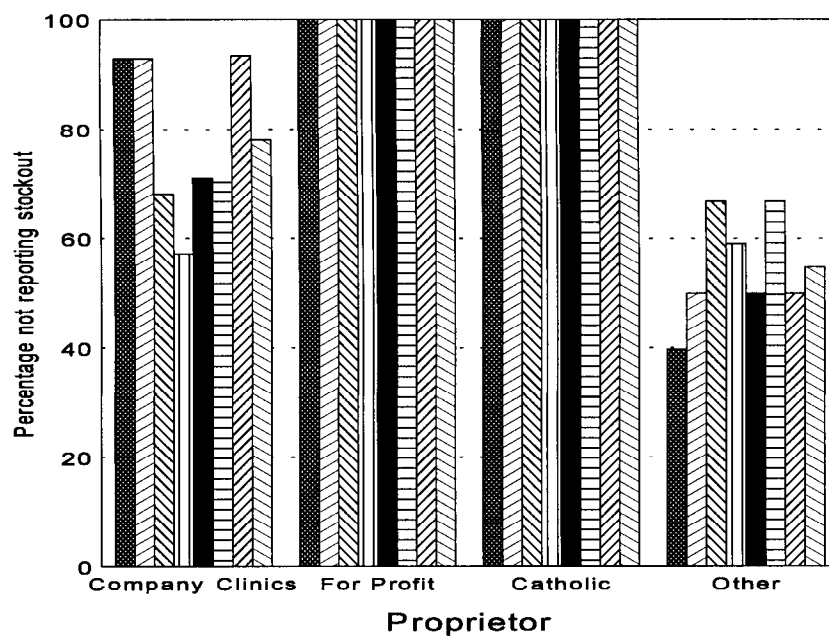
- ▲ Chloroquine
- ▲ Aspirin
- ▲ Antibiotics
- ▲ Oral rehydration salts (ORS)
- ▲ Vaccines
- ▲ Worms medicine
- ▲ Quinine

Information about drug availability is presented in *Graph 3-15*. Stockouts are represented by the distance between the top of the bar and the 100 percent mark; they represent the percentage of facilities interviewed that experienced one or more stockouts for the product in question in FY91. Generally, non-governmental providers were well endowed with inventories of drugs. For-profit providers in Dakar and Catholic health posts in Dakar and in the regions, had virtually no inventory ruptures in FY91. Surprisingly, stockouts were common in company clinics, with all products missing part of the year. "Other" providers in Dakar also exhibited stockouts for all products in one-half of the instances.

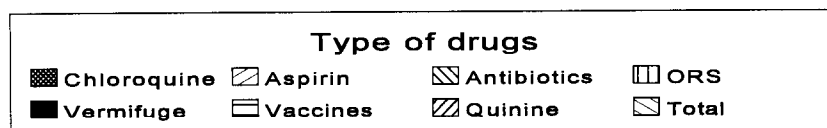
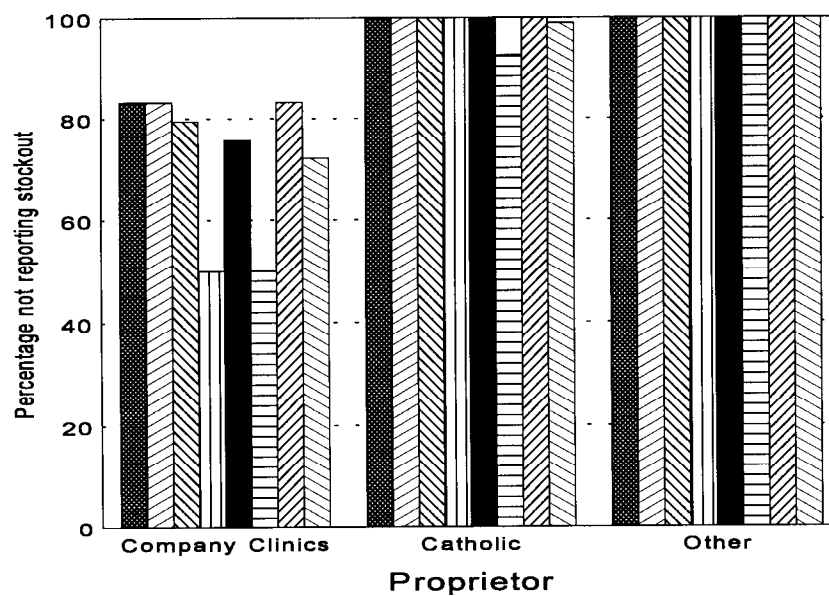
In the government sector, availability of essential drugs was poor. The majority of public facilities experienced inventory stockouts for most products during FY91 (*Graph B-1* of Appendix B). Chloroquine, ORS, and vaccines were the products most often out of stock. In FY91, one-half of the health centers in Dakar experienced shortages of chloroquine and ORS; over 60 percent of all health centers experienced stockouts of ORS and vaccines. The duration of stockouts varied from only a few weeks to the entire year. Dakar health facilities (centers and posts) were the least affected by stockouts.

Availability of Selected Drugs

DAKAR



REGION



Graph 3-15 Availability of Selected Drugs

Health posts in Dakar showed the best overall performance in terms of drug availability for the selected list. Inventory stockouts in the regions were more pervasive. For the selected list of products, health posts in general performed slightly better than health centers in terms of drug availability. Health huts had the poorest performance, with 30 to 50 percent of all facilities reporting stockouts for all selected products during the reference period.

Similar information was collected for a selected set of medical supplies that included:

- ▲ Alcohol
- ▲ Cotton
- ▲ Gloves
- ▲ Needles
- ▲ Microscope slides
- ▲ Syringes
- ▲ Thermo

The results from this inquiry for non-governmental providers are depicted in *Graph 3-16*. (For public facilities, the equivalent information is presented in *Graph B-2*.) As with drugs, for-profit and Catholic facilities virtually never lacked any of these supplies. Company clinics also performed well on this measure. An important share of the "other" providers, in contrast, lacked these supplies.

In the public sector (*Graph B-2*), inventory stockouts were common in the majority of facilities, often for most of the products selected. As with drugs, health centers and posts in Dakar were the best endowed. Likewise, health posts exhibited fewer stockouts of supplies than health centers.

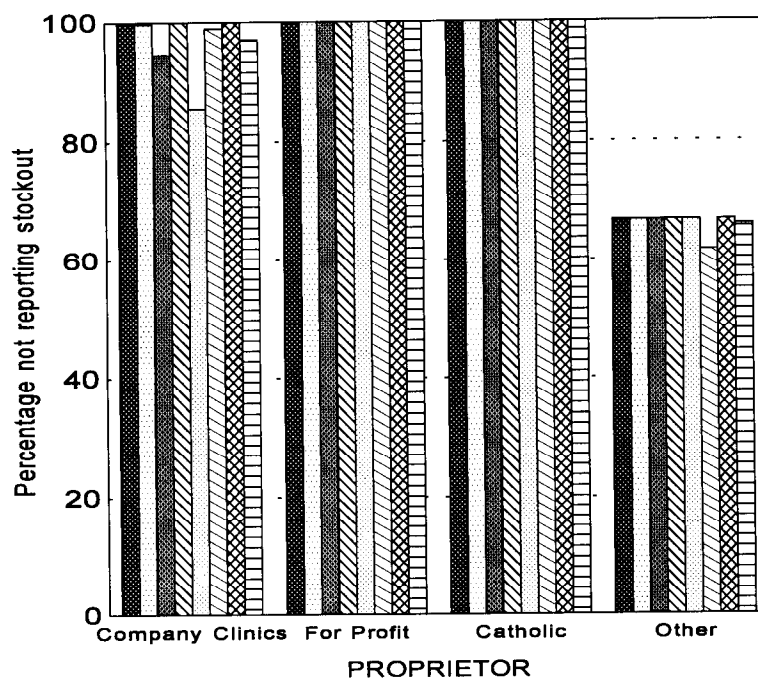
About one-half of the facilities did not have a thermometer at the time of the survey, or experienced stockouts during FY91. Similarly, supplies for laboratory exams, such as micro-slides and dyes lacked in one-half of the facilities during the recall period.

Health Process: Compliance with Standards of Diagnostic and Treatment

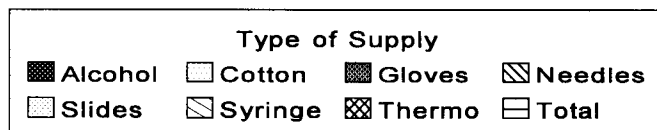
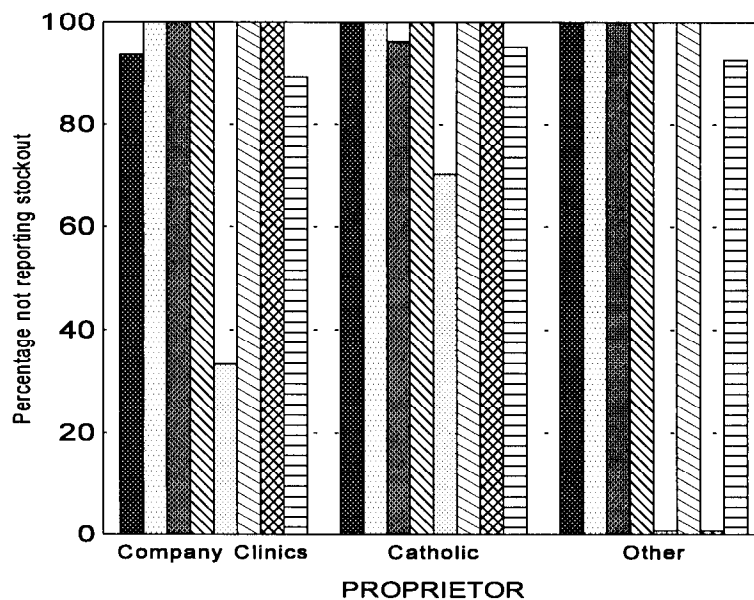
Treatment norms were defined by a survey team that included experienced university doctors and nurses. Medical personnel were observed while examining and treating patients whose chief complaint was fever or diarrhea; their behavior was contrasted with standards of practice. A random sample of patients was drawn from each facility in the sample. The size of the sample varied from 10 to 30 per facility, depending upon activity during the survey team's visit. The enumerator (a university-trained nurse) would sit in the provider's office, observe his or her behavior with patients, and record it in the questionnaire.

The results from this measurement are presented in *Graph 3-17* for non-governmental providers and for patients with a fever as the main symptom (see *Graph B-3* for equivalent public-sector information). Information for diarrhea is not presented because of space considerations, but similar findings emerged.

Availability of Selected Supplies

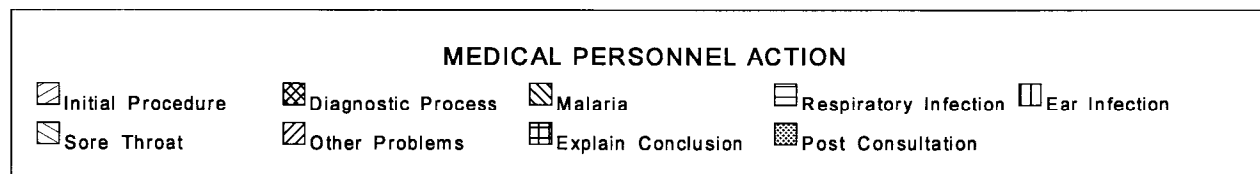
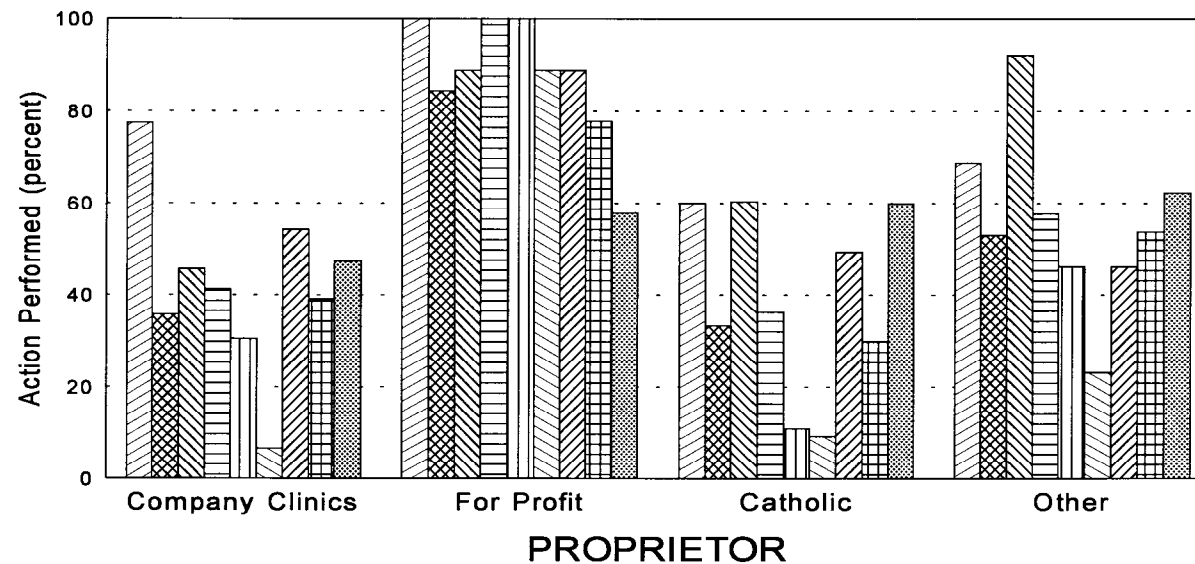
DAKAR

REGIONS



Graph 3-16 Availability of Selected Supplies

Medical Personnel Behavior for Fever Consultation by Proprietor



Graph 3-17 Medical Personnel Behavior for Fever Consultation by Proprietor

Health professionals complying with expert-defined standards should perform all medical tasks displayed on the X-axis of the figure, such as taking the patient's vital signs; examining the patient to rule out possible problems and identify the cause of the fever; informing the patient about the conclusion of the exam and the follow-up actions; and so on. If compliance were complete, the vertical bars would reach the top 100 percent mark. The distance between the top of each bar and the 100 percent mark represents non-compliance with standards. More precisely, that distance corresponds to the percentage of instances that the providers failed to meet the norm.

Highest compliance was observed among for-profit providers who performed most medical tasks as required in the majority of the instances. Compliance among the three other provider groups was poor. Standard tasks were skipped in about one-half of the instances. For example, health professionals in company clinics failed to communicate with patients in 60 percent of the instances. This figure was 70 percent in Catholic health posts. Non-compliance with treatment norms was pervasive and raises concerns about the quality of care among non-governmental providers other than the for-profit dispensaries.

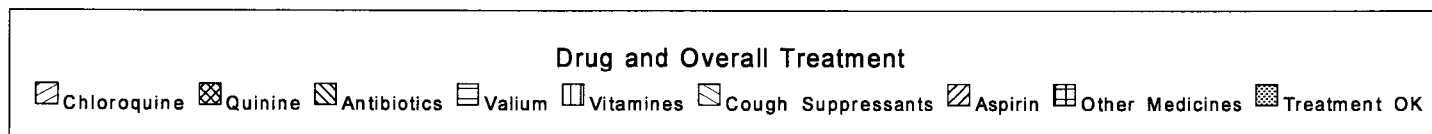
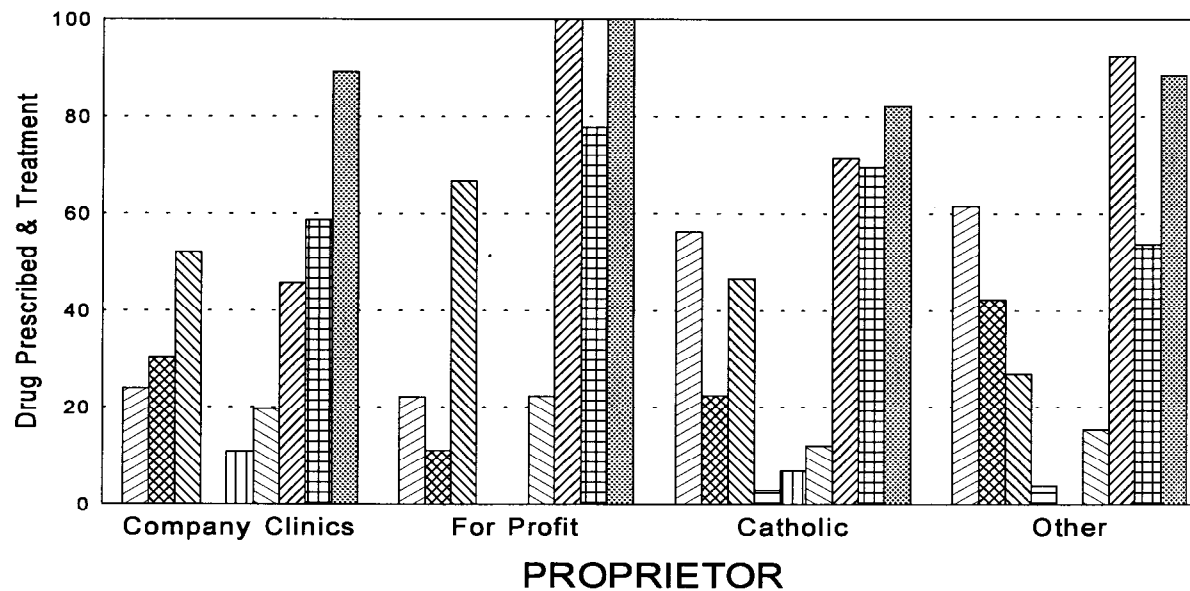
In the public sector, similar problems were found. Medical staff did not communicate well with patients, generally failing to explain the procedures involved in the examination and the conclusions arising from it (*Graph B-3*). For example, in hospitals medical personnel did not communicate adequately with patients in 75 percent of the instances (see "Explain Conclusion" in the figure). Standard tests, questions, and examinations to appropriately diagnose the condition were skipped routinely by most staff. For example, outside of hospitals, fewer than 5 percent of patients with a fever were screened for respiratory, ear, or throat infections. With the exception of health huts, medical staff in other types of facility failed to performed formal blood tests for malaria about 60 percent of the time.

Provider prescription practices were also recorded at the end of the medical examination of patients with a fever or diarrhea. The questionnaire listed drugs that should be commonly used when treating patients with a fever or diarrhea. For fever, the following drugs were listed: chloroquine, quinine, antibiotics, valium, vitamins, cough suppressants, and aspirin. The enumerator also recorded whether or not the prescription was consistent with the medical problem, as identified by the provider. Results from this inquiry are shown in *Graph 3-18*.

Treatment consistency was overall high, highest in for-profit facilities (100 percent) and lowest in Catholic posts (just over 80 percent). For-profit clinics seldom prescribed chloroquine or quinine, suggesting that their patients may have exhibited symptoms other than malaria. Instead, for-profit providers prescribed mostly antibiotics, cough suppressants, aspirin, and, with high frequency, other drugs (unfortunately not coded for this analysis). Chloroquine and quinine were most often prescribed by "other" providers and Catholic health posts.

Concerning the appropriateness of treatment in the public sector, health huts rated lowest followed by hospitals (*Graph B-4*). Posts exhibited the best performance, with almost 90 percent of all patients being prescribed the appropriate treatment. Use of drugs varied across facilities and regions, possibly reflecting different treatment practices, differences in patient case mix, and differences in the availability of drugs. For example, health centers in Dakar prescribed antibiotics to about 45 percent of all patients while health huts did so to just over 20 percent of their patients. In contrast, whereas hospitals prescribed chloroquine to fewer than half of their patients, health huts did so in over 75 percent of the instances.

Drug and Overall Treatment for Fever Consultation by Proprietor



Graph 3-18 Drug and Overall Treatment for Fever Consultation by Proprietor

Compliance with standard tasks for general medical procedures was also assessed. The procedures were infant weighing, child vaccination, and disinfection of wounds. The tasks included basic hygienic habits such as hand washing and disinfecting, informing the patient, cleaning up the work area, and so on. *Graph 3-19* presents the results for non-governmental providers (for public providers, see *Graph B-5*).

Compliance with standard actions was highest among for-profit dispensaries and Catholic posts, and lowest at company clinics. Throughout, compliance with hand washing and disinfecting was very low—less than 30 percent everywhere and below 10 percent in "other" clinics.

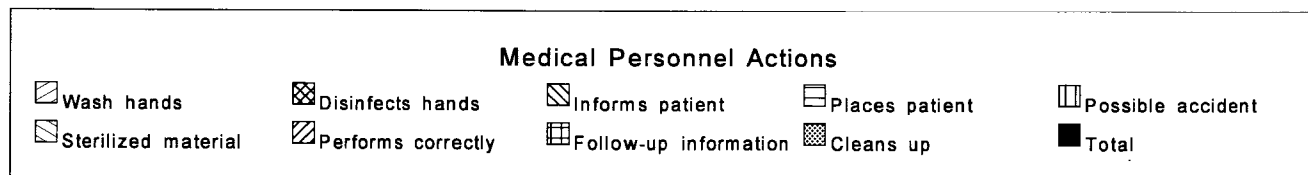
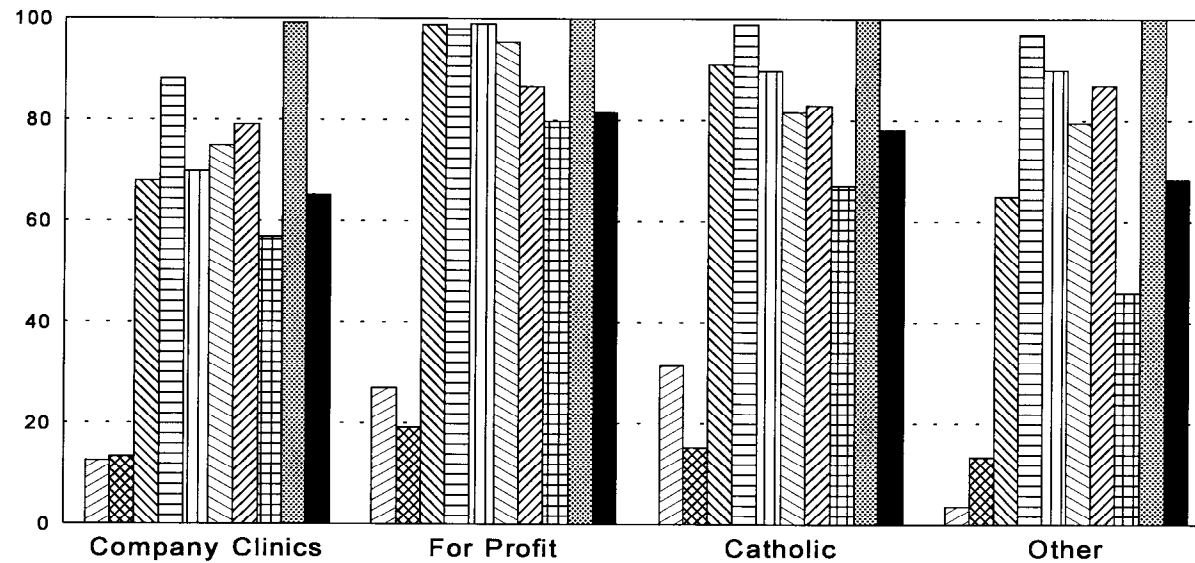
In the government sector (*Graph B-5*) there were small differences across facility types in compliance with standard medical actions; over 80 percent of all acts were performed correctly. As in the non-governmental sector, the practice of washing and disinfecting hands between patients was rarely complied with. For example, only about 5 percent of health center staff washed their hands with each new patient and less than 15 percent disinfected their hands. Concerning the provision of information to patients, staff performance for these procedures was better than in the case of patient showing up with fever or diarrhea as their chief complaint. The provision of information to patients was generally weak. For example, in health centers fewer than 20 percent of all patients were given follow-up information about their condition and only about 40 percent were informed about the actions involved in the procedures. Compliance with standard procedures varied across medical personnel categories. Nurses exhibited the highest levels of compliance while doctors had the lowest.

Patient Quality Perceptions

Patients exiting the premise were asked about the primary reasons for choosing that facility. Reasons were classified in five groups: economic, geographic, psychological, from a referral, and all other reasons (*Graph 3-20*). Patients of Catholic posts cited economic reasons as the most important for their choice of this type of provider. This suggests that Catholic posts were perceived as being relatively inexpensive by the population. In contrast, few of the patients of company clinics and for-profit providers cited economic reasons as the basis for their choice. Company clinics were chosen for other reasons (not coded), presumably because care is given for free to the firm's employees and their dependents. For-profit providers were chosen primarily for psychological reasons. "Other" providers were chosen primarily for geographic convenience. In sum, Catholic posts are viewed as giving "good value for the money"; company clinics as being the obvious choice for their beneficiaries; for-profit clinics as offering medical hope and thus psychological relief; and "other" providers as being "conveniently around the corner."

Among patients of government facilities (*Graph B-6*) the most common answer given was geographic convenience (over 50 percent of patients in hospitals to over 75 percent in health huts). The second most important reason cited for facility choice was psychological while the third was economic.

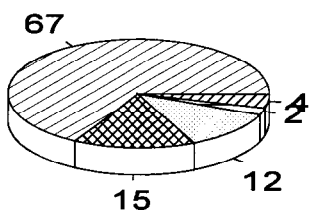
Medical Personnel Compliance with General Procedures, by Proprietor



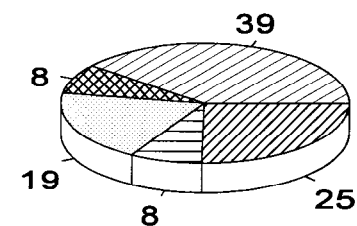
Graph 3-19 Medical Personnel Compliance with General Procedures, by Proprietor

Patient Perceived Quality of Care

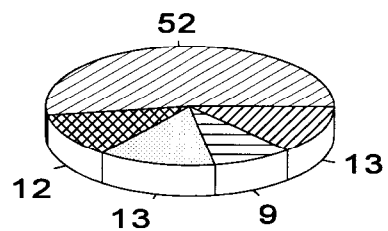
Company Clinics



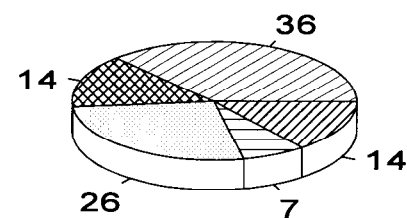
For Profit



Catholic



Other



REASONS

 Geographical
  Economical
  Psychological
  Reference
  Other

Graph 3-20 Patient Perceived Quality of Care

Upon exit from the facility, patients were also asked to rate quality of care according to a series of criteria (*Graph 3-21*). Generally, patients were satisfied with the visit and the treatment. Highest rates of drug prescription were reported among patients of Catholic posts, and lowest among patients of for-profit providers. This latter finding casts doubts over reports of excellent drug availability in for-profit facilities, presented above. These doubts are further reinforced by the high frequency of prescription issuance (the opposite of "got medicines" in the figure) in for-profit dispensaries. Data were incomplete about whether or not a payment was made for drugs. It is apparent from the figure, however, that patient payments were required everywhere and that patients were least satisfied with company clinic prices and happiest with prices in Catholic posts and in "other" facilities. Throughout the figure, patient dissatisfaction with care in company clinics is ubiquitous.

In all four types of public facilities (*Graph B-7*) most patients reported being overall satisfied overall with the visit and would return to the same facility for future care. Nevertheless, there were some differences in patient satisfaction: generally, hospitals were rated lowest, followed by health centers, and health posts; health huts, followed by health centers, received the highest ranking for most questions. In the public sector also, the provision of drugs to patients appeared to be closely linked with utilization levels (not shown; see Bitran, Brewster, and Ba, 1994). Facilities with the highest proportion of patients receiving drugs belonged to the highest utilization group, while those with lowest proportion of drug-receiving patients fell in the lowest utilization group. Accordingly, those facilities giving the highest proportion of prescriptions, instead of drugs, fell in the lowest utilization groups and vice versa.

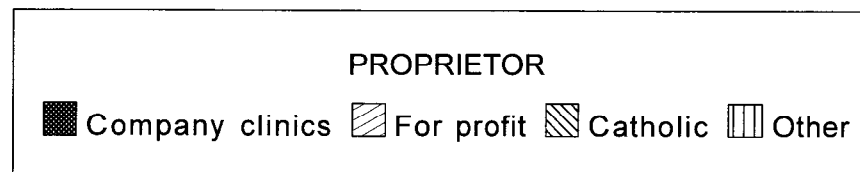
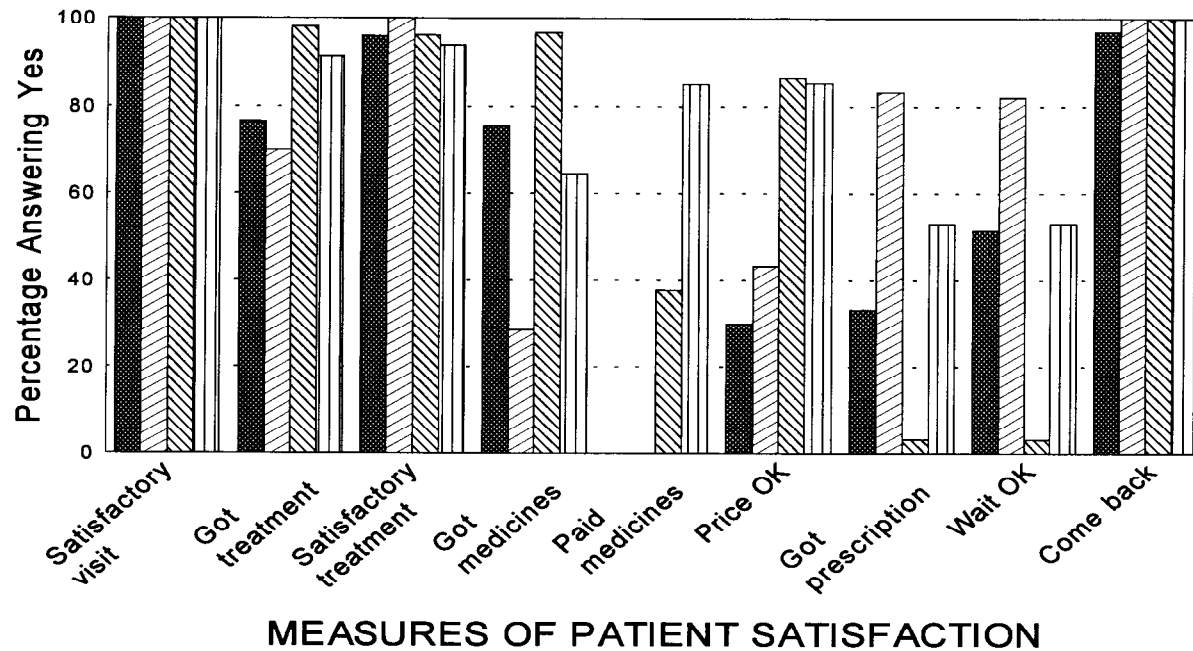
Staff Quality Perceptions

Medical staff members were asked to assess the quality of care in their facility relative to other similar facilities (*Graph 3-22*). Staff members were also asked to provide the most important factors that negatively affected quality when their assessment of quality was "average" or "poor."

Staff quality perceptions varied among providers in an important way. Best self-perception of quality was found among for-profit providers; least satisfied with their quality were staff members of "other" facilities. Company clinics and Catholic health posts displayed similar ratings.

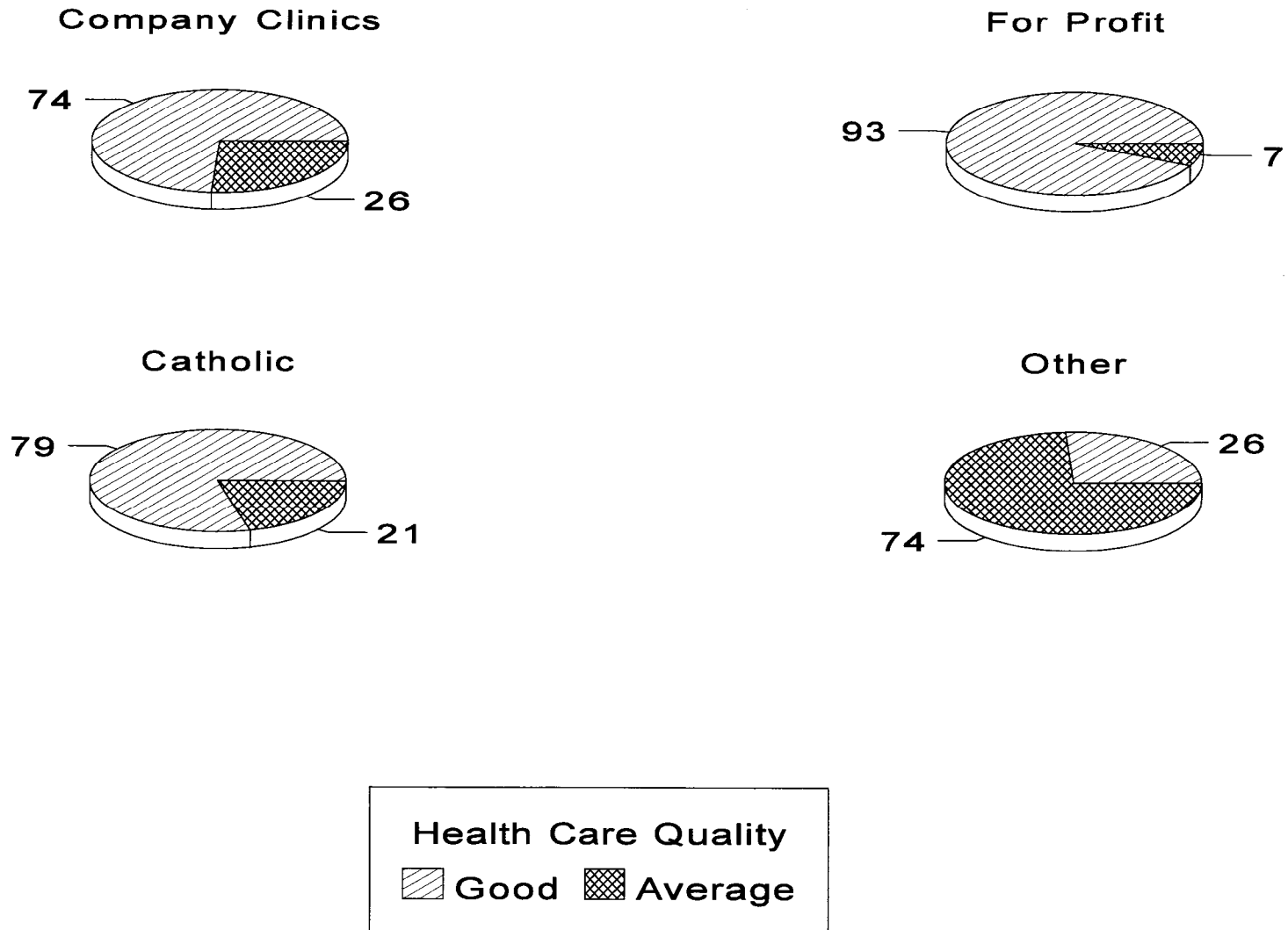
In the public sector, quality assessments varied by facility type, as depicted in *Graph B-8*. Generally, self-perceptions of quality in the public sector were more negative than among non-governmental providers. The worst perceptions of facility quality were found in health huts, where approximately 24 percent of the staff rated facility care as "poor." In contrast, the most positive responses were obtained in health posts, where one-third of the staff found quality in the facility to be "good."

Patient Perceived Quality of Care



Graph 3-21 Patient Perceived Quality of Care

Staff Perceptions of Health Care Quality



Graph 3-22 Staff Perceptions of Health Care Quality

4.0 SUMMARY AND CONCLUSIONS

This analysis of costs, financing, and efficiency of private health care providers in Senegal follows a twin study of the public system for health care delivery carried out earlier (Bitran, Brewster, and Ba, 1994). As with the public sector study, a sample of private providers was drawn from around the country to obtain a nationwide representative set. To allow performance comparisons, the public and private facilities were selected according to whether they produced several types of health services and whether they were willing and able to provide the necessary information to the survey team. Original survey questionnaires were developed by HFS and were used for both public and private providers.

The aim of the inquiry was to understand the role and performance of nongovernmental providers, to compare their performance with that of government facilities, and to explore the potential advantages of greater public-private collaboration.

Through this research we measured the providers' costs, financing, and quality of care. Cost and quality data were combined to infer efficiency measures. Information on financing permitted us to analyze recurrent cost financing and financial sustainability. The efficiency implications of the private and public providers' pricing systems also were assessed. Detailed results from our public sector research are presented in a separate HFS research paper (Bitran, Brewster, and Ba, 1994). In addition, several other studies were carried out in Senegal by HFS as part of a comprehensive analytical effort to provide the government with input to its policy reform initiative. (A list of related HFS research in Senegal is presented in Appendix C.)

The debate about the appropriate role of the private sector in health care delivery has been primarily ideological. Those who favor privatizing government health services often argue that the private sector is more efficient; those who favor a stronger role for public sector providers often do so based on a mistrust of private sector providers, which they feel seek their own gain at the expense of society.

Unfortunately, there is little empirical basis to support either of these points of view. While inefficiencies in government health services have been well documented, there has been little research that compares the performance of public and private providers. This study seeks to explore the role and performance of private providers and explores the efficiency of government intervention in health care production. An important policy question that is explored is whether health system efficiency could be enhanced by expanding the role of the private sector in the production of health services.

FINDINGS AND RECOMMENDATIONS

Private Sector Heterogeneity: A Good Thing

In health system analysis, the expression *the private sector* is commonly used to denote the set of non-governmental providers of health care. The expression conveys a sense of uniformity and common purpose. Contrary to this perception, this study has found that the private sector in Senegal includes a diverse array of providers. They differ from each other in terms of the types and volumes of services delivered, the price and quality of those services, and other characteristics. In Senegal, at least, there is no such thing as a prototype private provider.

Accordingly, policies aimed at affecting the role that these providers may play in health financing and delivery must recognize this diversity. Any particular policy measure may impact on the various types of provider differently.

Private heterogeneity can mistakenly be taken for a bad thing. In fact, diversity is a good thing because it reflects a medical market freely responding to the demands of the population. As we said in *Section 3*, for-profit clinics feature prices that exceed public sector and Catholic post prices by a factor of magnitude. There is nothing wrong about those providers and their prices, and therefore the government should do nothing in terms of interfering with their pricing and health care delivery practices. It is obvious that there individuals who appreciate the services offered by for-profit providers and who are therefore willing to pay a high price for that care. Private for-profit clinics have substantially higher costs than other private providers and that government facilities. Their higher costs are a reflection of the more resource intensive nature of their services. For-profit users appreciate such amenities and thus are willing to pay for them. By capturing the demand of patients with a strong ability to pay, for-profit providers are removing demand pressure from government facilities.

In the government sector, the potential for increasing efficiency by increasing the output of health facilities is difficult to exploit because of limited demand.

Company clinics offer a variety of medical services at prices and costs that much higher than the government's yet significantly lower than those of for-profit providers. "Other" private clinics also exhibit a different set of costs and prices. Each of these private providers captures a particular market niche and thus contributes in its own way to the national goal of improving health status of the population.

Relative Importance of the Private Sector

A large share of private sector providers are individual offices offering curative ambulatory care. The number of facility-based, non-governmental providers supplying both curative and preventive care, and the number featuring inpatient services, is small compared with the size of the public system. The earlier private sector study listed several large regional hospitals, about fifty health centers each with several beds, over 400 hundred health posts, and more than a thousand health huts. Although there are no legal restrictions against the private practice of medicine in Senegal, the private sector remains a secondary—albeit important—player on the supply side of the health system.

The government health delivery system is important in Senegal, as revealed by our research. In the short to medium runs, any significant medical care-related changes in the health status of the Senegalese population will have to come primarily from the public system. Equivalently, at this point the government cannot rely, fully or primarily, on the private sector to solve the country's health problems.

The above does not mean that non-governmental providers of care are irrelevant. To the contrary, we have found that they supply an important volume of good quality care, both curative and preventive. In particular, they are well endowed with basic medicines and with supplies that public facilities often lack. Thus, they offer an important alternative to a public sector that is experiencing a variety of problems (see Bitran, Brewster and Ba, 1994).

Greater Efficiency of Some Private Providers: Lessons to be Learned

Some private providers—Catholic health posts—are technically and economically more efficient than government facilities: at the same cost, they provide better quality of care. The government should take the initiative to explore the factors resulting in this greater performance. Options for achieving this are discussed below.

Self-Financing Among Non-Governmental Providers

An important difference between government and private providers of care is that, with the exception of company clinics, the latter self-finance their operations. Revenue data from "other" and from for-profit providers were not available, but, as we indicated in Section 3, they undoubtedly self-finance given that they receive no external subsidies. Catholic posts did provide data on cost recovery revenue and demonstrated that they do self-finance their operations. As already mentioned, they are able to achieve 100 percent cost recovery by charging prices that are almost twice as high as government prices. Improving the financial performance of government health facilities will require that quality of care be improved, costs reduced, and, most likely, that prices of care increased.

Economies of Scale Among Private and Public Providers: Opportunities for Inexpensive Growth in Output

The study of cost presented in Section 3 revealed that, like government health posts, Catholic posts and company clinics exhibit decreasing average cost, or economies of scale. That means that the unit cost of all visits decreases with each additional visit by a patient costs. Expanding output in these facilities would thus lower average cost and allow providers to offer the service at a lower price, while still breaking even.

In the government sector, economies of scale offer no real advantages under the current circumstances. Because quality of care is perceived by the population as being poor, demand is low and thus public resources—notably labor and infrastructure—are under-utilized. If quality were improved, however, by making more drugs available and by improving diagnostic and treatment practices, government facilities would attract more demand and thus benefit from economies of scale or lower unit cost of output.

In the private sector, economies of scale are also present but, for different reasons, their potential advantages do not translate in a real benefit. We think that higher private sector prices limit demand thus putting a natural break to the potential gains associated with higher output and lower average cost. The provision of government subsidies to private providers (more about this below), like Catholic health posts, would allow these to lower their prices, thus attracting greater demand and resulting in lower unit costs.

Exploring a Larger Role for the Private Sector

It is clear from our work that there are private providers that are well equipped to contribute, along with the government, to the pursuit of national health goals. Indeed, they already are contributing. Two important public policy questions ought to be asked: (1) Would it be desirable to have a greater private sector? If yes, (2) What government actions could lead to a greater private role?

In our view, the answer to the first question is yes—it is desirable to have a large private sector. Concerning the second question, there are several options available to the government to promote private growth.

A greater private sector is desirable for several reasons. We list three important ones. First, a larger private sector can remove pressure from the government to provide curative care. Where the public is willing to pay for good quality private care, both curative and preventive, private providers should be available as an option to, or instead of government services. Our research shows that Catholic posts offer services that appear to be of better quality than government care. Although their prices are higher than the public sector's, they provide more for the money—particularly drugs—than public facilities. By relying more on a larger private sector, scarce government resources can be freed up to address other health sector problems, like AIDS prevention and health education, that the government is in a unique position to address.

Second, relying on private providers like Catholic posts can also save scarce government resources. Our study has shown that, while they provide a better service, Catholics do so at the same unit cost as the government. This greater efficiency of Catholic posts may be traced to several technical and managerial factors, many of which we may have been unable to identify through this study. One efficiency factor that we did uncover, however, was the private sector's substantially higher labor productivity. Whereby labor accounted for almost 90 percent of recurrent cost in government health center and posts, crowding out drugs, supplies and other essential inputs, in the private sector it represented only about one-third of operating costs.

A third reason that makes a larger private sector desirable is the need to diversify the supply of services, thus reducing the risk associated with problems arising in a particular system.

Achieving Cost Savings from a Larger Private Sector

The greater efficiency of some non-governmental providers offers the prospect of saving public resources while capturing the economic advantages of their efficiency. But how exactly could the government save money by relying on private providers? By having the government pay them to deliver good quality care on its behalf and at a lower cost.

Government subsidization of private production of care would be accompanied by the condition that services be provided to the population at subsidized, previously agreed on prices. This policy would seek two basic public objectives: financial equity—prices do not constitute a major barrier to access, and efficiency—more quality care is delivered for each FCFA of public funds spent.

Several important practical questions present themselves when considering this policy: Are there viable mechanisms available to channel government subsidies to private providers and on to consumers? Is there significant private capacity for, and interest in producing primary health care for the government via cost reimbursement?

We believe that the answer to both questions is yes. An interesting example of where such policy is pursued is Zaire. Evidence from the notable health zones in Zaire has shown how government subsidies, however meager, can be put to good use under certain circumstances. And those circumstances answer the second question. The success of Zaire's health zones resided in the decentralized scheme under which the zones operated. In reality, the para-statal health zones were de facto private providers operating on a subsidized basis, and delivering services in accordance with national health programs, policies, and objectives.

To have a more efficient, yet still equitable health system, the government of Senegal can encourage, through direct subsidies to production, greater private activity in health care delivery. In addition, and simultaneously, it has to engage in a real effort of public health services decentralization in order to provide enough autonomy and incentives at the facility level to bring about the kinds of measures that result in higher efficiency. That includes foremost the removal of the employment privileges of the *fonction publique*, or public servants, so that management can flexibly adapt staffing to demand, thus improving the efficiency of labor.

But how in practice could the government establish the conditions whereby non-governmental providers can benefit from public subsidies? By setting forth the conditions that would entitle a private provider to receive government financial support. These would include reporting requirements about service provision and pricing practices. Periodic on site surveys of client satisfaction would also be necessary to ensure that the subsidy is ultimately benefitting the target recipients—low income populations in need for health care. A legal framework would have to be established to allow this type of public-private collaboration. We recommend that a workshop be held between government officials and representatives from the Catholic post network to explore potential collaboration.

A Larger Private Sector as an Important but Partial Solution

Private like production of health care is only part of a larger set of measures required to solve the many problems that afflict the health system of Senegal. A major obstacle to continued gains in health status is the public monopoly of drugs importation and distribution. Our study of the public sector piled up evidence of the perverse consequences that such a policy brings about. Any serious policy effort aimed at improving the health of the Senegalese population will have to include a complete change in pharmaceutical policy. As we stated in our earlier study, we believe that a regulated private market for generic essential drugs is the solution to the current crisis in the pharmaceutical sector. Further, if accompanied by a strong essential drugs policy among government-paid providers of care, such a measure may even offset the negative financial consequences that the FCFA devaluation may otherwise have.

Quality of Care Problems Among Private and Public Providers

This study has shown that some of the problems with quality of care found in the public sector (Bitran, Brewster, and Ba 1994) are also present in the non-governmental sector. While there does not seem to be an acute private shortage of drugs as in the public sector, there are deficiencies in medical practices. Compliance with medical standards of practice is generally better among private providers but it is far from been satisfactory, as we concluded from our analysis in **Section 3**. Should the government worry about quality of care problems in the private sector? Should it do something about them?

We think that government interventions that pertain to quality of care in the private sector should be limited to (1) the provision of information and medical education to the public; (2) the provision of high quality medical training in universities and other public schools; and (3) quality control of drugs in the market. Beyond that, the government should limit itself to the improvement of health care quality in public facilities. Enhancement of quality of care in the public sector, through the improvement of pharmaceutical product availability and better medical practices, will suffice to exert pressure on private providers, via consumer preferences and demand, to improve quality of care in their own medical operations.

ANNEX A

ADDITIONAL EXHIBITS

EXHIBIT A-1 CATHOLIC HEALTH POSTS. UTILIZATION BY REGION AND UTILIZATION QUARTILE					
	REGION				
	Dakar	Region	Total		
Sample Size	4	25	29		
Average per Facility (000s)					
Curative	69.4	16.7	24.0		
Prenatal	1.4	0.6	0.7		
Preschool	0.5	0.5	0.5		
Vaccinations	3.6	1.7	1.9		
Family Planning	0.2	0.0	0.2		
Education	0.1	0.1	0.1		
Total Preventive	5.8	2.9	3.0		
Deliveries	0.0	0.0	0.0		
Hospitalization	0.0	0.0	0.0		
TOTAL	75.2	19.6	27.0		
	UTILIZATION QUARTILE				
	UT 1	UT 2	UT 3	UT 4	TOTAL
Average per Facility (000s)					
Curative	3.6	7.6	14.2	104.6	24.0
Preventive	0.6	1.1	2.7	13.8	3.0
Deliveries	0.0	0.0	0.0	0.0	0.0
Hospitalization	0.0	0.0	0.0	0.0	0.0
Total	4.2	8.7	16.9	118.4	27.0

EXHIBIT A-2 COMPANY CLINICS. UTILIZATION BY REGION AND UTILIZATION QUARTILE			
	REGION		
	Dakar	Region	Total
Sample Size	7	6	13
Average per Facility (000s)			
Curative	9.9	15.4	12.4
Prenatal	0.7	0.4	0.6
Preschool	1	0	0.6
Vaccinations	1.9	0.2	1.1
Family Planning	0.4	0.3	0.4
Education	0.1	1.8	0.9
Total Preventive	4.1	2.7	3.6
Deliveries	n.a.	n.a.	n.a.
Hospitalization	n.a.	n.a.	n.a.
TOTAL	14	18.1	15.9

	UTILIZATION QUARTILE				
	UT 1	UT 2	UT 3	UT 4	TOTAL
Average per Facility (000s)					
Curative	3.8	7.4	29.6	59.6	12.4
Preventive	0.1	2.3	2.2	29.7	3.6
Deliveries	n.a.	n.a.	n.a.	n.a.	n.a.
Hospitalization	n.a.	n.a.	n.a.	n.a.	n.a.
Total	3.9	9.7	31.8	89.3	16

EXHIBIT A-3 OTHER CLINICS. UTILIZATION STATISTICS BY REGION AND UTILIZATION QUARTILE			
	REGION		
	Dakar	Region	Total
Sample Size	4	4	8
Average per Facility (000s)			
Curative	3.3	7.6	5.7
Prenatal	0.2	1.1	0.7
Preschool	0.1	0.1	0.1
Vaccinations	1.3	2.4	1.9
Family Planning	0.4	0.2	0.3
Education	n.a.	n.a.	n.a.
Total Preventive	2	3.8	3
Deliveries	0.1	0.2	0.2
Hospitalization	n.a.	n.a.	n.a.
TOTAL	5.4	11.6	8.9

	UTILIZATION QUARTILE				
	UT 1	UT 2	UT 3	UT 4	TOTAL
Average per Facility (000s)					
Curative	5.9	4.4	18.8	n.a.	5.7
Preventive	2.6	3	9.5	n.a.	3
Deliveries	0.1	0	0.9	n.a.	0.2
Hospitalization	0	0	0	n.a.	0
Total	8.6	7.4	29.2	n.a.	8.9

EXHIBIT A-4 PRIVATE FOR-PROFIT CLINICS. UTILIZATION STATISTICS BY REGION AND UTILIZATION QUARTILE			
	REGION		
	Dakar	Region	Total
Sample Size	4	2	6
Average per Facility (000s)			
Curative	2.8	2.4	2.8
Prenatal	n.a.	n.a.	n.a.
Preschool	n.a.	n.a.	n.a.
Vaccinations	0.1	0.8	0.3
Family Planning	n.a.	n.a.	n.a.
Education	n.a.	n.a.	n.a.
Total Preventive	0.1	0.8	0.3
Deliveries	0.4	0	0.4
Hospitalization	0.6	0	0.5
TOTAL	3.9	3.2	3.7

	UTILIZATION QUARTILE				
	UT 1	UT 2	UT 3	UT 4	TOTAL
Average per Facility (000s)					
Curative	4.1	6.2	n.a.	n.a.	2.8
Preventive	1.3	0	n.a.	n.a.	0.3
Deliveries	0.6	0.1	n.a.	n.a.	0.4
Hospitalization	0.8	0.2	n.a.	n.a.	0.5
Total	6.8	6.5	n.a.	n.a.	3.7

EXHIBIT A-5 DOCTOR AVERAGE DAILY PRODUCTIVITY BY PROPRIETOR AND SERVICE CATEGORY					
	Company Clinic	Catholic Health	Private for Pft	Other	Total
Dakar					
Curative	17.9	n.a.	12.4	n.a.	14.7
Prenatal	0.9	n.a.	0.9	n.a.	0.9
Preventive Other	1.7	n.a.	1.7	n.a.	1.7
Delivery	n.a.	n.a.	0.2	n.a.	0.2
Hospitalization	n.a.	n.a.	3.1	n.a.	3.1
Total	13.7	n.a.	7.1	n.a.	9.3
Regions					
Curative	20.8	42	12.3	n.a.	23.4
Prenatal	n.a.	2.8	n.a.	n.a.	2.8
Preventive Other	2.8	n.a.	n.a.	n.a.	2.8
Delivery	n.a.	n.a.	0.1	n.a.	0.1
Hospitalization	n.a.	n.a.	n.a.	n.a.	n.a.
Total	13.6	22.3	8.2	n.a.	14.7

EXHIBIT A-6 MIDWIFE AVERAGE DAILY PRODUCTIVITY BY PROPRIETOR AND SERVICE CATEGORY					
Service Category	Company Clinic	Catholic Health	Private for Pft	Other	Total
Dakar					
Curative	0.3	0.3	2.5	3.8	1.9
Prenatal	2.3	4.3	n.a.	1.1	3.0
Preschool	5.8	n.a.	n.a.	0.3	3.1
Preventive Other	n.a.	n.a.	n.a.	n.a.	0.0
Family Planning	1.3	0.2	n.a.	0.9	1.1
Delivery	n.a.	n.a.	1.1	n.a.	1.1
Hospitalization	n.a.	n.a.	4.8	n.a.	4.8
Total Ave	1.6	2.7	2.8	2.1	2.2
Regions					
Curative	7.2	n.a.	n.a.	n.a.	7.2
Prenatal	1.8	n.a.	n.a.	n.a.	1.8
Preschool	n.a.	n.a.	n.a.	n.a.	n.a.
Preventive Other	0.4	n.a.	n.a.	n.a.	0.4
Family Planning	2.0	n.a.	n.a.	n.a.	2.0
Delivery	n.a.	n.a.	n.a.	n.a.	n.a.
Hospitalization	n.a.	n.a.	n.a.	n.a.	n.a.
Total	3.2	n.a.	n.a.	n.a.	3.2

EXHIBIT A-7 NURSE AVERAGE DAILY PRODUCTIVITY BY PROPRIETOR AND SERVICE CATEGORY					
	Company Clinic	Catholic Health	Private for Pft	Other	Total
Dakar					
Curative	18.7	19.1	n.a.	n.a.	19.0
Prenatal	n.a.	0.4	n.a.	n.a.	0.4
Preschool	n.a.	0.3	n.a.	n.a.	0.3
Family Planning	n.a.	0.2	n.a.	n.a.	0.2
Total	18.7	9.7	n.a.	n.a.	4.1
Regions					
Curative	2.4	17.7	n.a.	30.2	17.5
Prenatal	n.a.	0.7	n.a.	1.1	0.8
Preschool	0.1	2.6	n.a.	0.9	2.0
Family Planning	n.a.	0.4	n.a.	1.9	1.2
Total	1.3	10.5	n.a.	8.5	9.9

EXHIBIT A-8 CATHOLIC HEALTH POSTS. PRICES BY PROPRIETOR AND SERVICE CATEGORY			
Service Category	Region		
	Dakar	Regions	Total
Sample Size	7	6	13
Average Prices (FCFA)			
Curative adults	275	312	306
Curative specialty	n.a.	n.a.	n.a.
Total Curative	263	273	271
Prenatal	333	363	357
Preschool	188	100	135
Family Planning	n.a.	n.a.	n.a.
Vaccinations	100	79	84
Total Preventive	207	181	192
Deliveries	n.a.	n.a.	n.a.
Surgery	n.a.	n.a.	n.a.
Hospitalization	n.a.	n.a.	n.a.
Laboratory	138	142	139
X-ray	n.a.	n.a.	n.a.

EXHIBIT A-9 COMPANY CLINICS. PRICES BY PROPRIETOR AND SERVICE CATEGORY			
Service Category	Region		
	Dakar	Regions	Total
Sample Size	7	6	13
Average Prices (FCFA)			
Curative children	n.a.	3,000	3,000
Curative adults	n.a.	3,000	3,000
Curative specialty	200	5,500	2,850
Total curative	200	3,833	2,950
Prenatal	n.a.	n.a.	n.a.
Preschool	200	n.a.	200
Family Planning	200	n.a.	200
Vaccinations	200	n.a.	200
Total Preventive	200	n.a.	200
Deliveries	n.a.	28,500	28,500
Surgery	n.a.	1,200	1,200
Hospitalizations	n.a.	n.a.	n.a.
Laboratory	n.a.	220	220
X-ray	n.a.	1,250	1,250

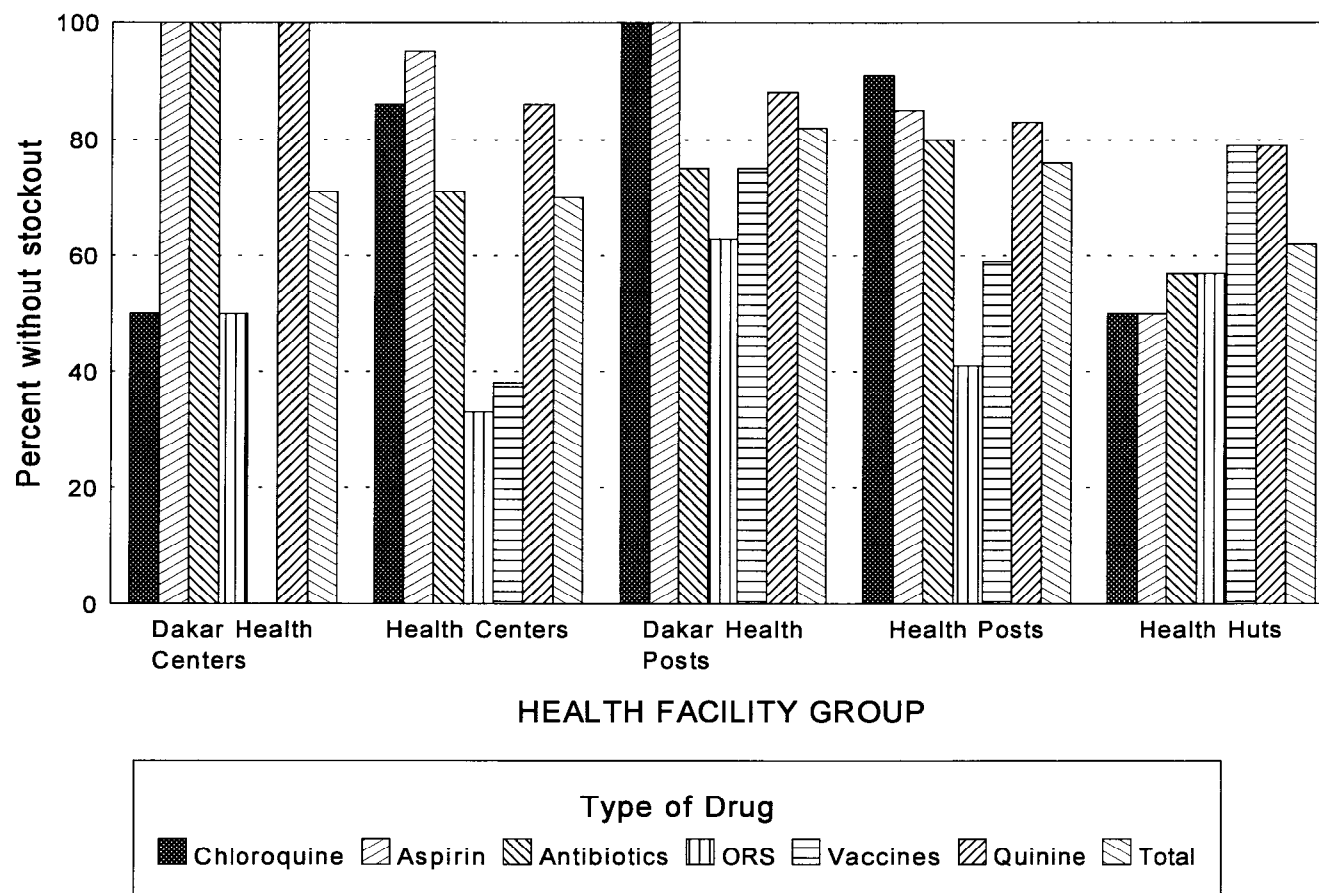
EXHIBIT A-10 PRIVATE FOR-PROFIT CLINICS. PRICES BY PROPRIETOR AND SERVICE CATEGORY			
Service Category	Region		
	Dakar	Regions	Total
Sample Size	4	2	6
Average Prices (FCFA)			
Curative children	10,000	6,000	8,000
Curative adults	10,000	6,000	8,000
Curative specialty	10,000	6,000	8,000
Total curative	10,000	6,000	8,000
Prenatal	n.a.	6,000	6,000
Preschool	10,000	n.a.	10,000
Family Planning	n.a.	n.a.	n.a.
Vaccinations	n.a.	n.a.	n.a.
Total Preventive	10,000	6,000	8,000
Deliveries	45,000	n.a.	45,000
Surgery	n.a.	n.a.	n.a.
Hospitalizations	46,334	n.a.	46,334
Laboratory	n.a.	n.a.	n.a.
X-ray	n.a.	n.a.	n.a.

EXHIBIT A-11 OTHER CLINICS. PRICES BY PROPRIETOR AND SERVICE CATEGORY			
Service Category	Region		
	Dakar	Regions	Total
Sample Size	4	4	8
Average Prices (FCFA)			
Curative children	100	138	125
Curative adults	200	188	192
Curative specialty	625	0	625
Total curative	308	163	225
Prenatal	600	200	371
Preschool	100	n.a.	100
Family Planning	750	n.a.	750
Vaccinations	100	75	90
Total Preventive	388	138	328
Deliveries	n.a.	1000	1000
Surgery	n.a.	n.a.	n.a.
Hospitalizations	n.a.	n.a.	n.a.
Laboratory	n.a.	n.a.	n.a.
X-ray	n.a.	n.a.	n.a.

ANNEX B

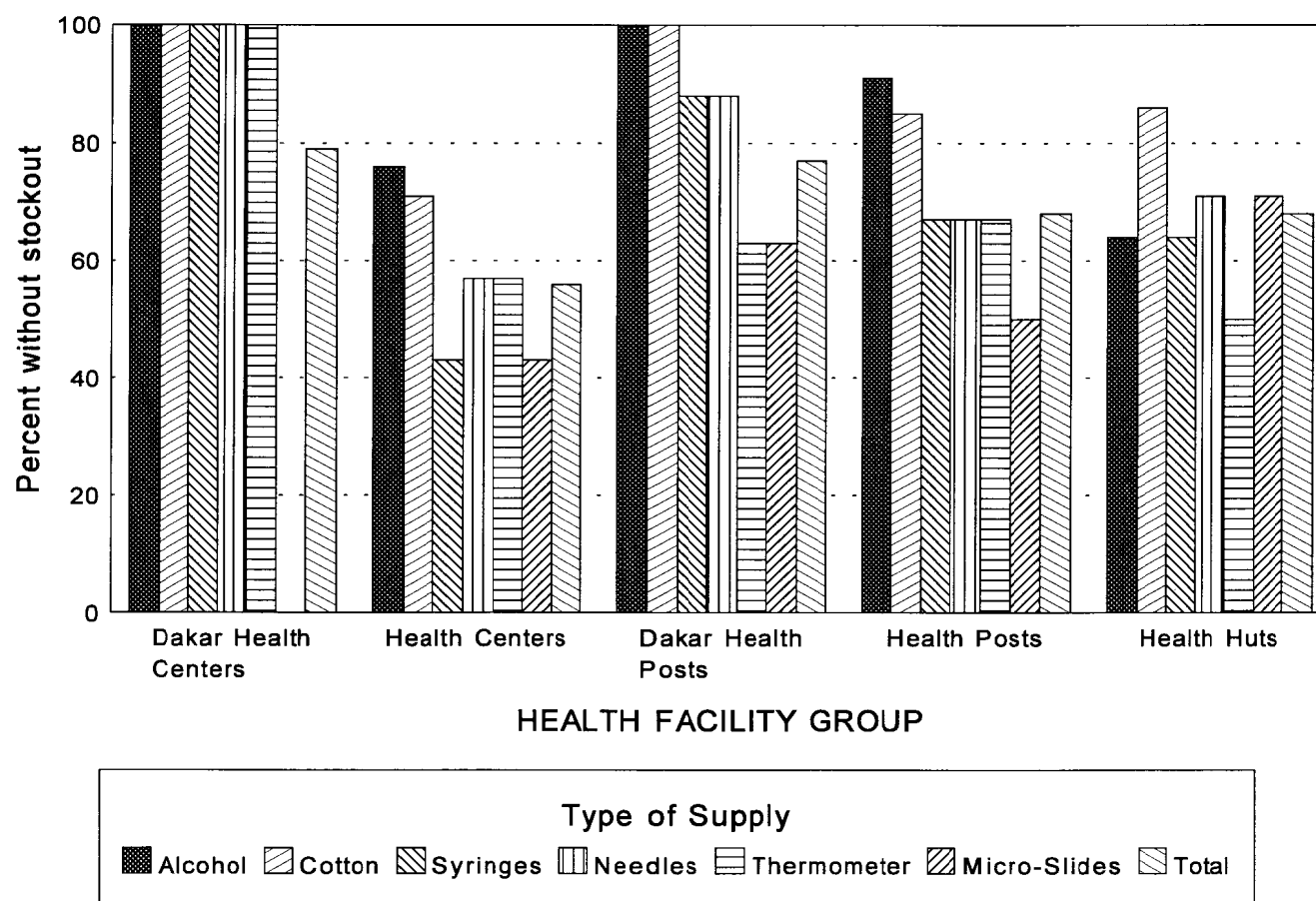
ADDITIONAL GRAPHS

Health Centers, Health Posts, and Health Huts Availability of Selected Drugs in FY 1991



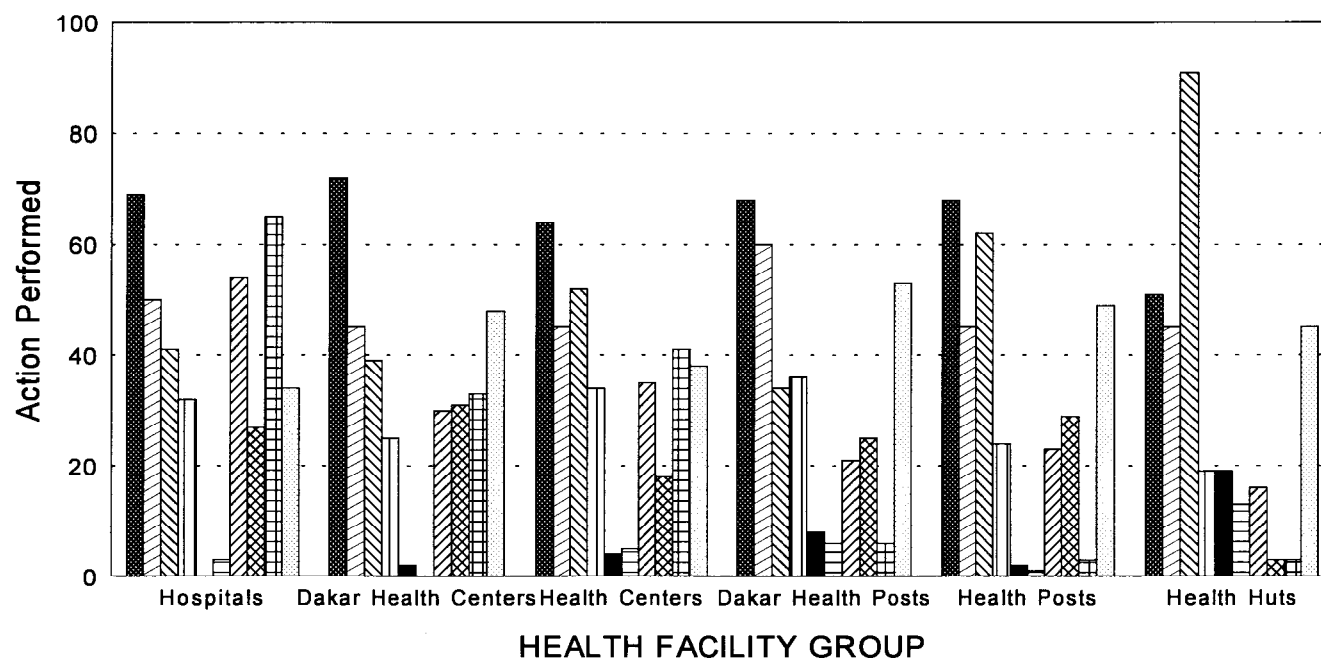
Graph B-1 Health Centers, Health Posts, and Health Huts: Availability of Selected Drugs in FY1991

Health Centers, Health Posts, and Health Huts: Availability of Selected Supplies in FY 1991



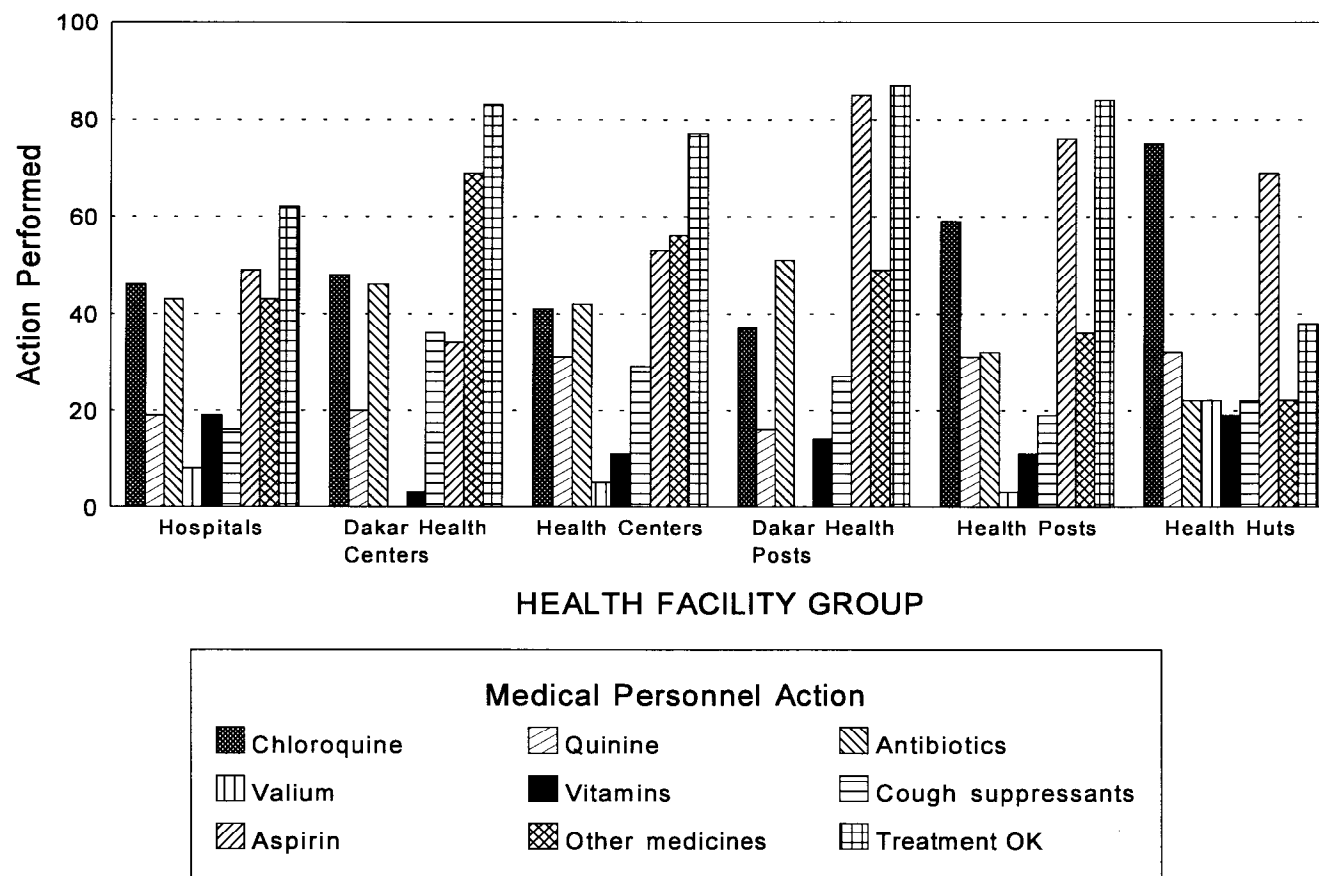
Graph B-2 Health Centers, Health Posts, and Health Huts: Availability of Selected Supplies in FY1991

Medical Personnel Behavior for Fever Consultation by Type of Facility



Graph B-3 Medical Personnel Behavior for Fever Consultation by Type of Facility

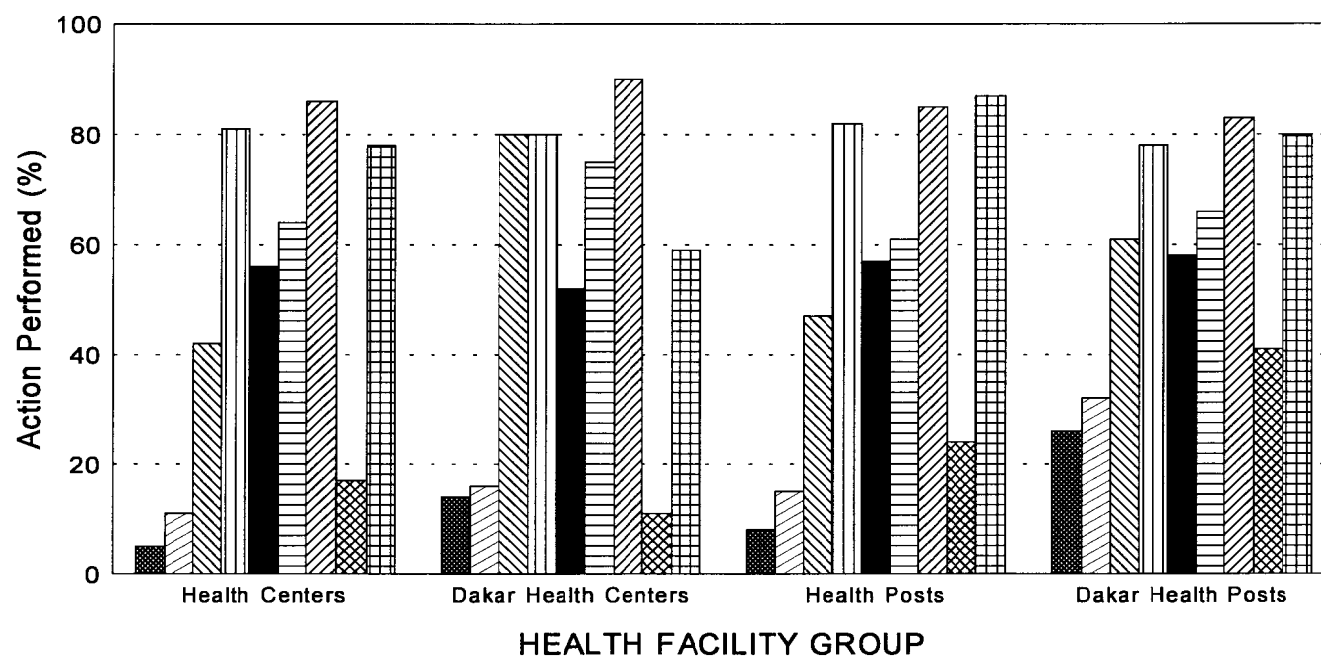
Medical Personnel Behavior for Fever Consultation by Type of Facility



Graph B-4 Medical Personnel Behavior for Fever consultation by Type of Facility

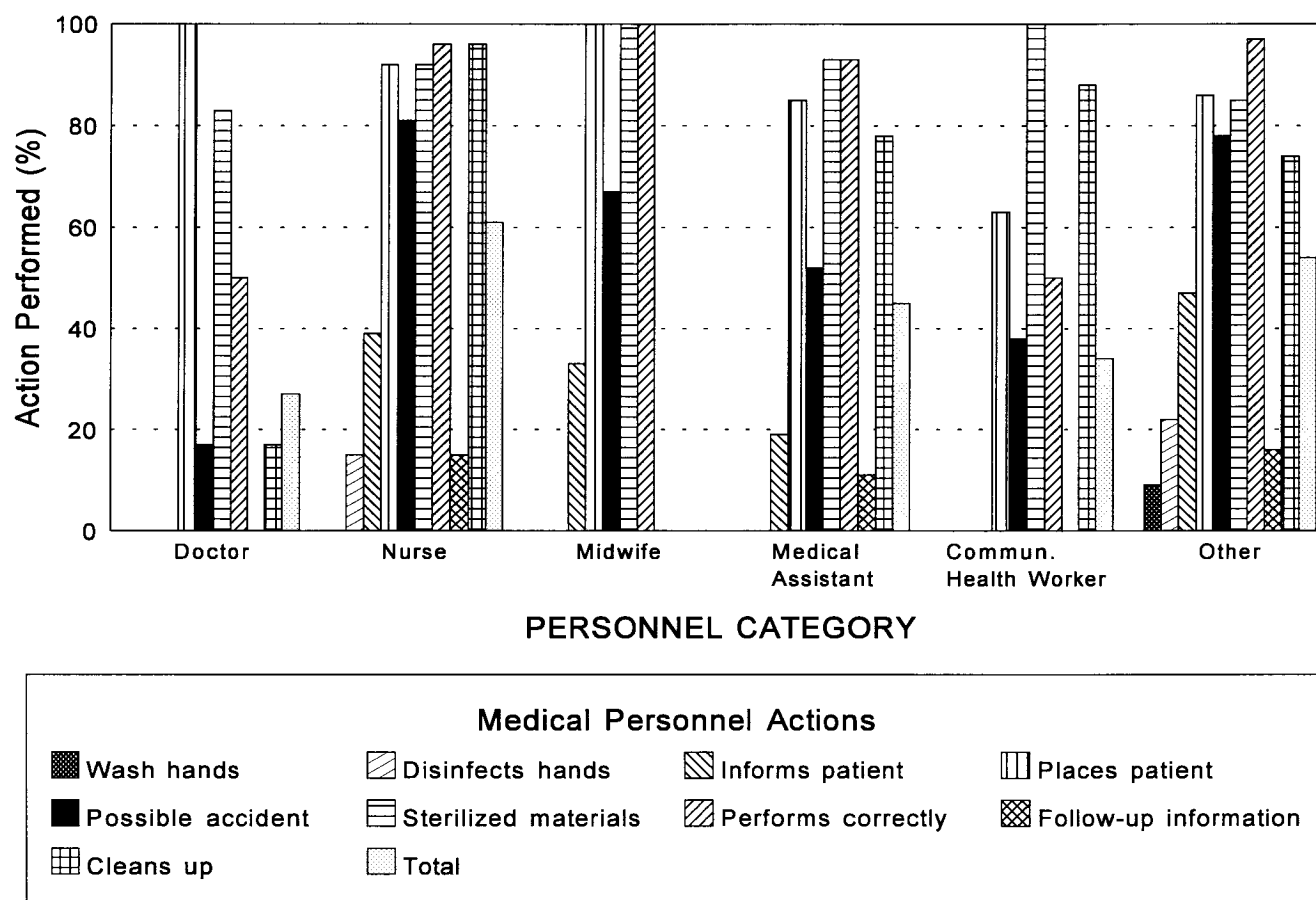
Health Centers and Health Posts

Medical Personnel Behavior—General Procedures



**Graph B-5 Health Centers and Health Posts
Medical Personnel Behavior—General Procedures**

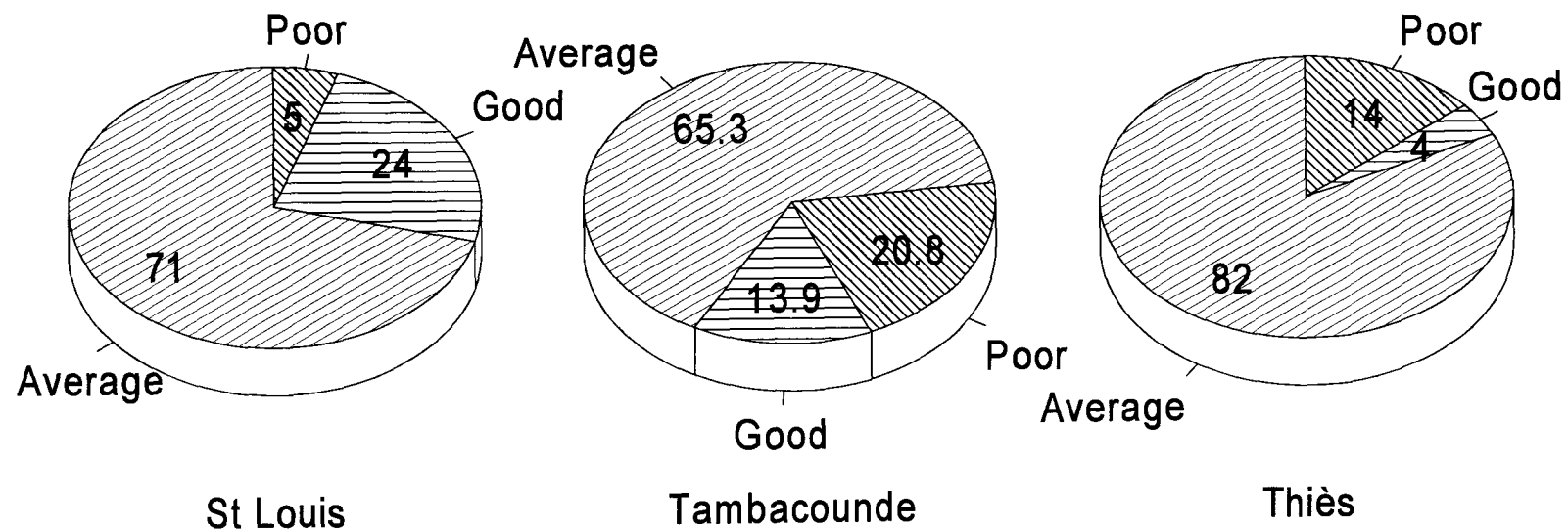
Health Centers—Medical Personnel Behavior General Procedures by Personnel Category



**Graph B-6 Health Centers—Medical Personnel Behavior
General Procedures by Personnel Category**

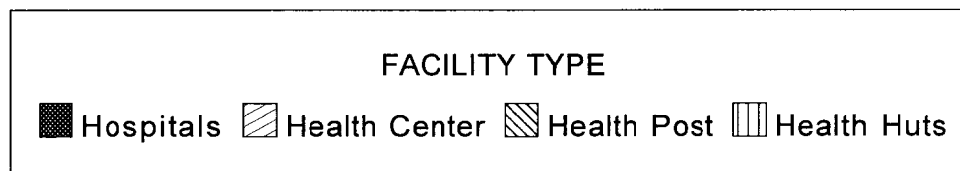
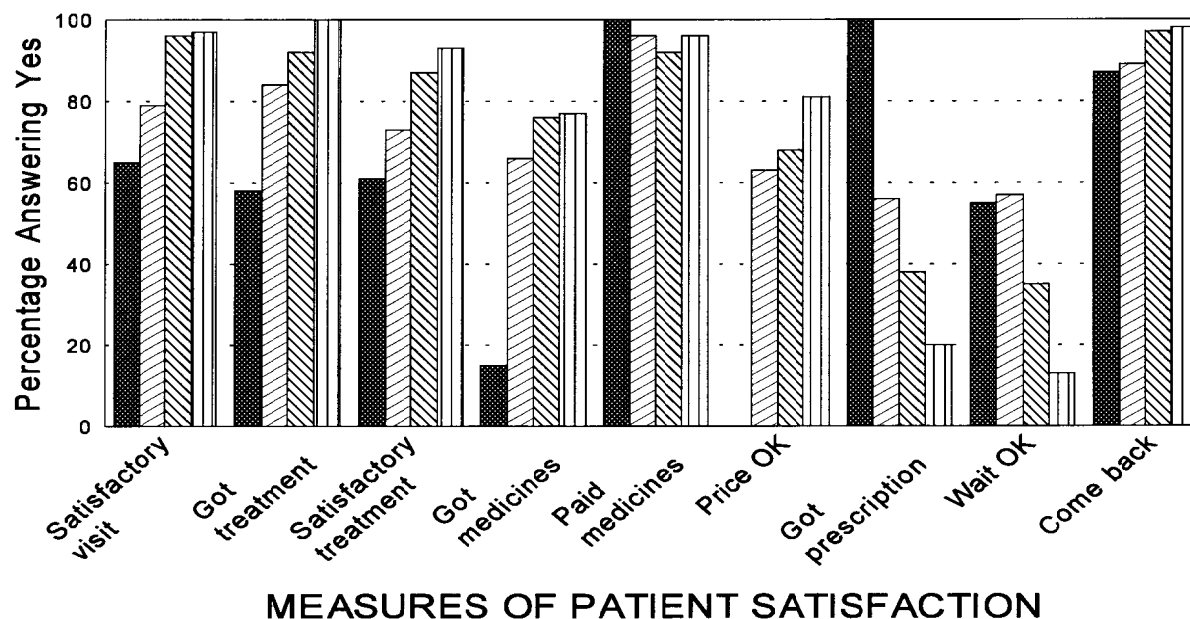
Staff Perceptions of Facility Health Care Quality

Hospitals



Graph B-7 Staff Perceptions of Facility Health Care Quality: Hospitals

Patient Perceived Quality of Care—Selected Measures of Patient Satisfaction by Type of Facility



Graph B-8 Patient Perceived Quality of Care—Selected Measures of Patient Satisfaction by Type of Facility

ANNEX C

APPENDIX C

Studies by the Health Financing and Sustainability Project in Senegal

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